

**ROLE OF COMMUNITY HEALTH WORKERS IN ENHANCING
MATERNAL HEALTH CARE PROGRAM IN MOMBASA
COUNTY, KENYA**

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**A Research Project Report Submitted in Partial Fulfilment of the Requirements
for the Award of Master of Arts Degree in Project Planning and Management of
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DECLARATION

This research project report is my original work and has not been presented for any award in any other university.

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DEDICATION

I dedicate this work to my family for their moral support and encouragement throughout my study. More so to my beloved dad Hamisi, and my sisters Fatuma, Asha, Mwanahamisi, Mariam, and Halima for their love and inspiration.

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LIST OF ABBREVIATIONS

CHWs	Community Health Workers
EHW	Extension Health Workers (Ethiopia)
PMTCT	Prevention of Mother-To-Child Transmission
PNC	Pre-Natal Care
UNICEF	United Nations Children Education Fund
WHO	World Health Organisation
MDGs	Millennium Development Goals
TBA	Traditional Birth Attendants
RoK	Republic of Kenya
MHC	Maternal Health Care
MDGs	Millennium Development Goal
UN	United Nations
UNFPA	United Nations Fund for Population Affairs
PHC	Primary Health Care
NMR	Neonatal Mortality Rate
NHSSP	National Health Sector Strategic Plan
MMR	Maternal Mortality Rate
HIV	Human Immunodeficiency Virus
FCHV	Female County Health Volunteer
NGO	Non-Governmental Organization
HEWs	Health Extension Workers
ITNs	Insecticide Treated Nets
PMTCT	Prevention of Mother To Child Transmission
ANC	Antenatal Care
PNC	Post Natal Care

ABSTRACT

In spite of considerable progress in many countries in achieving the Millennium Development Goals (MDGs) for health, progress is inadequate, stalled, or even worsening in a number of countries, particularly in Africa (UNICEF & WHO, 2012; UN, 2011). Community Health Workers (CHWs) are now recognized by the World Health Organization and the Global Health Workforce Alliance as an integral component of the health workforce needed for the progression of health-related MDGs. The objectives of this study was to determine the role of CHWs in providing education services, provision of preventive materials, referring mothers and providing Social support and advocacy to enhance maternal health care in Mombasa County. Role development theory is used as the theoretical framework for the current study. The study used a descriptive survey research design. The population for the study included 550 households and 50 community health workers in Tudor Moroto, Mombasa County. The sample size for the study was calculated using Role (2010) formula whereby 225 household (mothers who have infants aged less than 6 months) and 50 CHWs were sampled using systematic random sampling technique. The study used structured questionnaires and interview schedule as instruments for data collection. The research tested the research instruments for validity (content validity) and reliability (test-retest). The researchers sought approval from the relevant authorities before conducting field work. The data collected from the field was analysed using quantitative and qualitative research methods. Quantitative data was analysed using descriptive; frequencies, percent, mean and standard deviation and inferential statistics; chi square with the help of SPSS computer software (Version 20.0). Content analysis method was used to analyse qualitative data from interview with CHWs. Findings of the analysis are presented using tables, pie charts, graphs as well as narrations for qualitative data. The results of the study showed that CHWs played a significant role ($p < 0.05$) in enhancing maternal healthcare in Tudor Moroto community unit. However, only 50% of the population received CHWs services on MHC. The study found out that MHC educational materials, materials, drugs, health facilities and FP supplies were inadequate according to CHWs and respondents opinion. The study recommends training for CHWs, governmental support towards availing preventive materials and supplies, committed leadership and introduction of mobile clinics to reduce the distance between households and health facilities. This will end up reducing mortality rates in the community unit. The findings of the study will be helpful to Ministry of Health (at county and national level) in taking strategic steps towards reducing mortality rates in the unit and country at large.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

One of the most natural phenomena of human beings is pregnancy and childbirth (World Health Organisation [WHO], 2007). It is fundamentally necessary for the mere existence and capacity for continuance, and no technological advances can replace it (Jokhio, Winter & Cheng, 2005). Motherhood should be a time of expectation and joy for a woman, her family and her community but they are by no means risk-free (United Nations Funds for Population Affairs [UNFPA], 2008a). For some women in certain parts of the globe particularly in developing countries the reality of motherhood is often grim. For those women, motherhood is often marred by unforeseen complications or even a loss. Some women loose the foetus even before being born or shortly after birth; while some loose both their life and that of the baby.

Maternal mortality unfortunately remains a significant problem as it is estimated that 536,000 women die each year from pregnancy-related causes (UNFPA, 2008a). According to WHO, United Nations Children's Funds (UNICEF) and United Nations Funds for Population Affairs (UNFPA) joint estimates, 515 000 women die each year of pregnancy related causes (Wangalwaet *al.*, 2012). Of these over half takes place in Africa, 42% in Asia, 4% in Latin America and Caribbean, and less than 1% in the more developed countries. In other words over 99% of maternal deaths take place in developing countries (WHO, 2007). This extraordinary difference in maternal mortality rates between the industrialized and the developing countries is the most striking fact in the world today about maternal health, a focus of this study.

The call for the reduction of maternal mortality is an international development goal and has been adopted by the United Nations, the Organization of Economic Cooperation and Development, the International Monetary Fund and the World Bank (and endorsed by 149 heads of states at the Millennium Summit in 2000 (WHO, 2007). Furthermore, the reduction of maternal mortality was a common goal to several international conferences including; Nairobi Safe Motherhood Conference in 1987, the World Summit for Children in 1990, the International Conference on Population and Development in 1994 and the Fourth World Conference on Women in 1995 (Jokhio,*et al.*, 2005).

The global policy of providing primary level care was initiated with the declaration of Alma-Ata in 1978s (WHO, 2007). The countries signatory to Alma Ata declaration considered the establishment of community health workers program as synonym with Primary Health Care [PHC] approach (Prasad & Muraleedharan, 2007). Thus in many developing countries PHC approach was seen as a mass production activity for training CHWs in 1980s. During these processes the voluntary health workers or CHWs were identified as the third workforce of “Human resource for Health” (Sein, 2006). Following this approach CHWs introduced to provide PHC in 1980s are still providing care in the remote and inaccessible parts of the world (WHO, 2006a).

Sweden is most frequently referred to as the pioneer of maternal health improvements, achieving the lowest maternal mortality rate in Europe at the start of the 20th century, and as it also has the most thorough demographic data from that time, although Norway, Denmark and the Netherlands followed closely behind (Van Lerberghe and De Brouwere, 2001). In addition the concept of using community members to render certain basic health services to the communities from which they come has a 50-year history at least. The Chinese barefoot doctor programme is the best known of the early programmes, although Thailand, for example, has also made use of village health volunteers and communicators since the early 1950s (WHO, 2007). Barefoot doctors were health auxiliaries who began to emerge from the mid-1950s and became a nationwide programme from the mid-1960s, ensuring basic health care at the community level (Sein, 2006).

The roles and activities of community health workers are enormously diverse throughout their history, within and across countries and across programmes. While in some cases CHWs perform a wide range of different tasks that can be preventive, curative and/or developmental, in other cases CHWs are appointed for very specific interventions (WHO, 2007). In the United States, community health workers are an essential component of the health care delivery system. They provide the critical link between the health care and human service system and their communities (Ballester, 2005). Community health workers (CHWs) improve access to and increase utilization of primary health care, reduce costs of care, improve quality of care, and reduce health disparities. They achieve these goals by serving as the bridge between clients in need and needed health care and human services.

In northern India, the neonatal mortality rate (NMR) fell by 25% in two years after community health workers (CHWs) were trained in essential new-born care, identification and special care of at-risk infants and referral to health facilities when appropriate (Prasad & Muraleedharan, 2007). In Guatemala, the infant mortality rate declined by 85% when an immediate evidence-based treatment of infants began in the community, with accompanied referral to a nearby hospital (Asha *et al.*, 1986 in Wangalwaet *al.*, 2012).

In Liberia, the inclusion of CHWs in health services is in this regard important for advising mothers on visiting a health facility for prenatal visits, and also identifying possible complications that would require treatment at a health facility, and that a woman would then possibly have time to reach before the complications become severe (MoHSW, 2007b). In this way, CHWs can be very effective, as they can get in contact with all the women in their community regardless of societal position, and ensure they seek the right treatment and are aware of how they must look after themselves. This method makes sure women can make informed decisions about their health, to an extent removing the structural barrier of ignorance that many women have suffered from due to being excluded from education. However, CHWs are not actually certified to administer any health services, which means prenatal-, delivery, and postnatal health services still need to be provided by skilled birth attendants, with the issues of lack of resources and distance to the few resources available, still a problem for many women.

A community-based trial conducted in Tanzania and Kenya demonstrated that, for areas in which maternal immunization against tetanus was not feasible, measures such as Traditional Birth Attendant (TBA) training for safe and clean delivery and cord care were effective in decreasing perinatal, neonatal, and infant mortality (Central Bureau of Statistics, 2003). In Kenya, maternal mortality ratio and neonatal mortality rate trends have remained unacceptably high in a decade (Wangalwaet *al.*, 2012).

Wangalwaet *al.*, (2013) also established that the maternal mortality ratio (MMR) is estimated to be 488 women per 100,000 live births which have not significantly changed over the last decade. Maternal deaths represent about 15% of all deaths of women aged 15-49 years. In seeking to improve the health outcomes in Kenya, Kenya's Ministry of Health (MOH) through its National Health Sector Strategic Plan II (NHSSP II) emphasizes on promotion of individual and community

health. One of the core goals of the strategy is to building the capacity of community health extension workers (CHEWs) and CHWs to provide community level services. However, there is no empirical evidence to demonstrate the effect of CHWs roles in enhancing maternal health in Mombasa County. It is against this backdrop that the study determined different roles that CHWs played in enhancing maternal healthcare in Mombasa County, Kenya.

1.2 Statement of the Problem

There has been no substantial change in maternal mortality in sub-Saharan Africa over the past ten years and therefore progress towards MDGs 4 and 5 has remained slow in this region (Wangalwaet *al.*, 2012; WHO, 2007). The MDG 5 commits the global community to reducing maternal mortality by three-quarters between 1990 and 2015, and ensuring universal access to reproductive health by 2015. The progress of many countries in Sub Saharan Africa is insufficient to reach the target if prevailing trends persist. Statistics from World Health Organisation (2013) show that MDGs goals has substantially been achieved in Kenya but the report fails to indicate the extent to which mortality rate has risen or decreased in Mombasa County.

Despite the existence of community health workers, reports have shown that cases of Maternal Mortality Rate (MMR) continue to increase (UNICEF, 2010). For example, in 2003 there were 36 cases against 58 reported in 2010 in Mombasa County. What is not clear is whether the community health workers are delivering their services to residents of the area by targeting maternal healthcare or other areas? The government of Kenya through the Ministry of Health has developed a community health strategy with the aim of improving health service delivery at community level since 2006 but the outcomes of the project have not been adequately documented. These issues prompted the researcher to check on the role of community health workers in enhancing maternal health care among community members in Mombasa County, Kenya.

1.3 Purpose of the Study

The purpose of the study was to investigate various roles that community health workers play in enhancing maternal healthcare in Mombasa County, Mombasa County, Kenya.

1.4 Objectives of the Study

The following were the objectives of the study

- (i) To determine the role of Community Health Workers in providing educational services to enhance Maternal Health Care in Mombasa County
- (ii) To establish the role of Community Health Workers in provision of preventive materials and supplies in enhancing Maternal Health Care in Mombasa County
- (iii) To establish the role of Community Health Workers in referring mothers to enhance Maternal Health Care in Mombasa County
- (iv) To determine the role of Community Health Workers in providing social support and advocacy to enhance Maternal Health Care in Mombasa County

1.5 Research Questions

The study was guided by the following research questions

- (i) What role does CHWs provide in provision of educational services on improvement of maternal healthcare in Mombasa County?
- (ii) What role does CHWs play in provision of preventive materials and supplies in enhancing MHC in Mombasa County?
- (iii) What are the roles of CHWs in referring mothers towards enhancing MHC in Mombasa County?
- (iv) What role does CHWs provide in provision of social support and advocacy in enhancing maternal health care in Mombasa County?

1.6 Research Hypothesis

The study tested the following alternative hypotheses;

- Ha₁ CWHs play a significant role in offering educational services to enhance maternal health care in Mombasa County
- Ha₂ CHWs play a significant role in provision of preventive materials to enhance maternal health care in Mombasa County
- Ha₃ CHWs play a significant role in referring mother to enhance maternal health care in Mombasa County

Ha₄ CHWs provide a significant role in provision of social support to enhance maternal health care in Mombasa County

1.7 Significance of the Study

The study findings will be significant to Mombasa County members, women, CHWs, Ministry of Health (under county and national government) and future researchers. Primarily, this is aimed at empowering women, men, families, and communities to stay healthy, make healthy decisions and respond to obstetric and neonatal needs and emergencies; strengthen linkages between service deliveries at community level to the health facilities. These benefits will accrue as a result of effective delivery of CHWs services.

The CHWs will benefit from the findings of this study as their working conditions and environments concerns will be highlighted for further action by the concerned authorities. The ministry of health at county level will utilise the study findings in identifying the best way of promoting maternal health care through involvement of CHWs. This will end up in reducing maternal mortality rate and thereby ensuring the achievement of MDGs before next year deadline. It is also expected that the study will be of great significance to the national government in developing policies relating to community access to better, efficient and quality health services. Lastly, the study findings will form basis for further research in the field of community health surveys.

1.7 Delimitation of the Study

The study was conducted within Tudor Moroto Community Unit and therefore the findings of the study are only applicable within the designated geographical area and not any other community units in Mombasa County. Secondly, the study examined maternal healthcare as the main dependent variable of the study and therefore other roles of CHWs like OVCs social support were not covered in this study.

1.8 Limitations of the Study

The study noted that the available literature is quite varied in character. A great number of the publications are programmatic rather than academic in character, narrating experiences with CHW programmes and making the case for their

importance, rather than providing rigorous scientific evaluations and analyses. However, there are also a substantial number of systematic evaluations, some of them making use of controlled or intervention trials, others using a range of qualitative and quantitative evaluation methods. The study faced challenges in data collection as some respondents (CHWs in particular) failed to participate in the study for fear of personal identity, but the researcher assured them the confidentiality of their responses they gave.

1.9 Assumptions of the Study

The study had the following assumptions:

- (i) That the respondents answered all questions truthfully
- (ii) The study was conducted within the specified timeline and budget
- (iii) That maternal health care is dependent on various services provided by community health workers
- (iv) That the research instruments used provided answers for the study research questions

1.10 Definition of Significant Terms

Community health workers (CHWs): they are practitioners who are usually ‘selected, trained and work within the communities from which they come. CHWs perform a broad range of tasks in maternal health which include curative, preventive and promotive functions. These include health education and promotion, advocacy, community mobilisation, dispensing reproductive health commodities and drugs, basic clinical interventions and referral.

Community: refers to people who share a common socio-cultural background, religion or habitat. This includes vulnerable high-burden populations who reside in a variety of settings such as geographically isolated villages, urban slums or on borders.

Educational services: refers to sensitisation activities on maternal health care programmes to pregnant mothers by training and conducting meetings.

Maternal mortality: defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (UNFPA, 2008d).

Preventive materials- involve provision and delivery of medications to patients’ homes that include micronutrients, condoms, and family planning pills by CHWs.

Provision of social support- refers to assistance given by CHWs to new born and pregnant mothers on the importance of maternal health.

Referring mother- the act of CHWs recommending pregnant and lactating mothers to go for further medical check-up in a health institutions to avoid risks associated with their pregnancy, delivery and new born status.

1.11 Organisation of the Study

This chapter has presented the background information to the study, research problem, objectives and significance of the study. Chapter two presents the review of related literature together with conceptual and theoretical frameworks for the study. Chapter three provides the research design and methodological procedures used in collecting data for this study. Chapter four presents the analysis of research results while chapter five presents the conclusion and recommendations of the research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of related literature on the different roles that CHWs play in improving maternal health. The reviewed literature starts by looking at the concept of community health worker in relation to maternal health. Thereafter, the review of literature follows the objectives of the study, theoretical framework is provided at the end of the review together with conceptual framework and literature summary.

2.2 Concept of Community Health Workers

The concept of using community members to render certain basic health services to the communities from which they come has a 50-year history at least (Lehmann & Sanders, 2007). The concept of CHWs is not new, but dates back to over 50 years ago (a well-known example is that of the “Barefoot Doctors” in China in the 1950s). The Chinese barefoot doctor programme is the best known of the early programmes, although Thailand, for example, has also made use of village health volunteers and communicators since the early 1950s. In Haiti, where Partners in Health’s CHW program originated, they are called *accompagnateurs*, to emphasize the importance of accompanying community members in their journey through sickness and back to health (Partners in Health, 2011).

According to UNICEF (2004), the role of the community health worker was re-emphasized during the Alma Ata conference in 1978. According to Partners in Health (2011), the 1978 Declaration of Alma-Ata described CHWs as a major vehicle for the advancement of primary health care in areas with limited resources, stating that the people have the right and duty to participate individually and collectively in the planning and implementation of health care.

According to WHO, CHWs are men and women chosen by the community, and trained to deal with the health problems of individuals and the community, and to work in close relationship with the health services. They should have had a level of primary education that enables to read, write and do simple mathematical calculations (WHO 1990 in UNICEF, 2004). Partners in Health (2011) opine that community health workers (CHWs) around the world are men and women who work to improve the health outcomes and general well-being of their fellow community members.

Tulenkoet *al.*, (2013) alludes that after Alma-Ata, the eagerness of public health authorities to produce national blueprints for the rapid scale-up of primary health care did, however, generally miss out on creating ample space for community participation. The comprehensiveness and continuity of care so basic to the model were soon replaced by selective interventions for focused results, including selected maternal and child health interventions and family planning. Well-intended, top down national planning and external support created wave after wave of CHWs in the making and reshaping, under different names and with different roles. The current research seeks to establish whether different roles that CHWs play are improving maternal health in Mombasa County.

Many countries and many communities can recall a history of training, deployment and failure of several repeating initiatives, such as that in the United Republic of Tanzania in the 1980s (Heggenhougen, Muhondwa&Rutabanzibwa-Ngaiza, 1987). Caught between the formal health system and the community and often in a “grey zone” between public, nongovernmental and private health systems, CHWs were for a long time seen as a stopgap measure and did not receive the adequate support needed for sustainability.

Tulenkoet *al.*, (2013) observes that when the epidemic of HIV infection set in, community-based care models found new expressions. The need to act grew organically out of the affected communities in the early days of the epidemic. People living with HIV infection had no choice but to help one another. What evolved was a system rooted in the local context and born out of friendship and a shared experience: mothers supported mothers, gay men supported gay men and grandmothers helped grandmothers.

When the early antiretroviral became available, projects and programmes funded by governments, donors and NGOs spotted the opportunity to utilize existing community HIV support networks and began funding training and development for CHW programmes specific to the needs of HIV programmes, yet largely without being part of the local health services and clinics. What started out as community-based responses began to evolve into multiple, stand-alone CHW programmes focused on HIV care with varying degrees of formality, sustainability, success, support and reporting (Hermann et al., 2009).

The use of CHWs for childhood development and maternal, neonatal and child health care has a long history, as illustrated in India. The Accredited Social Health

Activists (ASHA) model for the follow-up of women during pregnancy, delivery and the postnatal period has been relatively successful in overcoming barriers to service delivery and increasing institutional deliveries (Gopalan, Mohanty & Das, 2012). The ASHA programme has attained roughly 70% coverage of both mothers and neonates in participating areas (Sundararaman, Ved & Gupta, 2012).

Lady health workers in Pakistan, *behvarz* in the Islamic Republic of Iran, *agentes comunitários de saúde* in Brazil, BRAC community health workers in Bangladesh, village health volunteers in Thailand, and health extension workers in Ethiopia all represent different successful CHW models (Global Health Workforce Alliance, 2010). Zambia agreed on a national CHW strategy in 2010 and implemented a community health assistant programme in 2012.

In August 2011 Nigeria held its very first national meeting on human resources for health, which brought together various partners and representatives of all levels of government. Similar national meetings have taken place in Kenya in 2011 and in 2013 the United Republic of Tanzania. These programmes and processes have, in different ways, brought in the voices of the CHWs and their communities and seek to optimize the potential contribution of skilled and supported CHWs to primary health care (Telenko *et al.*, 2013).

CHW programs have a role to play that can be fulfilled neither by formal health services nor by communities alone. Ideally, the CHW combines service functions and developmental/promotional functions that are, also ideally, not just in the field of health. Perhaps the most important developmental or promotional role of the CHW is to act as a bridge between the community and the formal health services in all aspects of health development, the bridging activities of CHWs may provide opportunities to increase both the effectiveness of curative and preventive services and, perhaps more importantly, community management and ownership of health-related programs.

2.3 Role of Community Health Workers in providing education services to enhance Maternal Health Care

Community health workers (CHW), also known as *promotoras* or community health promoters, are a local, sustainable resource to provide health education in a culturally competent context (Dawson, Pradhan, Houston, *et al.*, 2008; Haines, Sanders, Lehmann, *et al.*, 2007). Community health workers are successful in

providing health education because they are from the community; therefore, a trustful relationship is already established and integration into the community has already occurred. Elsewhere Partners in Health (2011) observed that CHW can provide basic clinical support and health education that may promote primary as well as secondary disease prevention.

Population Council (2012) indicates that CHWs can play a vital role in working within a community-based team to educate women on the importance of attending antenatal, delivery, and postnatal care with a skilled professional. The survey showed that CHWs are involved with their communities providing predominantly health education, information/referrals and translation services in the areas of, Maternal and Child Health/Perinatal and Family Planning. CHWs provide general health education as well as family planning education and contraceptive provision such as pills and condoms (and injectables, where permitted) (WHO, 2007). In Kenya the roles CHWs play is to provide IEC with key messages to promote early childhood care including exclusive breastfeeding (RoK, 2012).

2.4 Role of Community Health Workers in provision of preventive materials and supplies in enhancing MHC

CHWs can deliver medications to patients' homes, provide directly observed therapy, offer first-aid (such as preventing significant bleeding) prior to obtaining the necessary urgent professional care patients may need (Partners in Health, 2011), CHWs are involved in promoting breastfeeding, advocating for and referring to family planning services, and encouraging HIV testing and enrolment in programs to prevent mother-to-child transmission of HIV.

Although CHWs (including TTBAAs) are not trained to manage obstetrical complications, the early recognition and referral of these complications are essential for safe home deliveries. The promotion of clean deliveries at home is also key. One randomized controlled trial from rural Pakistan has demonstrated a reduction in perinatal and maternal mortality through training and support of TBAs. However, there are few other studies of sufficient quality to draw strong conclusions on the situation in Kenya and Mombasa County in particular.

WHO (2007) adds that they keep a lookout for people who show signs of developing a serious condition. Identifying and treating a disease at an early stage

makes it less dangerous and less expensive to treat, thereby reducing the overall financial burden on the healthcare system.

The regular home-based distribution of micronutrients to pregnant women, principally iron and folate, by CHWs has been associated with favourable results for birth weight and mortality in neonates and pre-term infants: intrauterine growth restriction is reduced by 14% (Bhutta *et al.*, 2008). These micronutrients can be provided to patients at health facilities or at drug shops, but when CHWs provide them through routine periodic contact with families, the coverage rate is much higher.

In the context of maternal and child care, Brazil's Family Health Programme employs female CHWs to make monthly house visits to deliver prenatal care, vaccinations and check-ups, oral rehydration, and to promote breastfeeding. In the first state where the programme was introduced, infant mortality decreased by 32% within five years, inspiring the government to expand the programme nationwide. Now with 25,000 health worker teams (comprised of CHWs, doctors, and nurses) that serve 60% of Brazil's population, the programme is associated with reductions in infant mortality (Lehmann and Sanders, 2007).

In trial settings conducted throughout Asia, neonatal mortality was reduced through home visits by trained community health workers to promote preventive care/and or to provide curative new-born care (WHO & UNICEF, 2009). In addition to delivery care, CHWs can provide antenatal and postnatal care. They can reduce the risk of post-partum haemorrhage and subsequent maternal mortality with the provision of oral misoprostol for mothers to take immediately after the delivery to promote uterine contraction (Sanghvi *et al.*, 2010). CHWs also have a long and distinguished history of promoting family planning through home visits, distributing oral birth control pills and condoms, and referring women for longer-term methods provided at facilities (Prata, Vahidnia, Potts, & Dries-Daffner, 2005).

More recently, they have been able to effectively provide women with injectable contraceptives which only need to be provided at three-month intervals at home or nearby (Malarcheret *et al.*, 2011). Of course, the benefits of family planning extend far beyond reducing the risk of maternal mortality to virtually all of the other MDGs. Birth spacing reduces under-five mortality, improves child nutrition (by virtue of having fewer children to care for), facilitates women's empowerment and education (due to greater control they have over their lives), and reduces environment degradation by slowing population growth (Cates, 2010; Cates *et al.*, 2010).

Furthermore, family planning reduces HIV transmission by reducing the number of pregnancies in HIV-infected women.

Nepal is one of the least likely countries to be a leader in improving the health conditions of its people (Perry and Zullinger, 2012). Female Community Health Volunteers (FCHVs) are widely seen as one of the most important contributors to Nepal having one of the fastest rates of decline of under-five mortality rates in the world and to achieving its MDGs for child and maternal health in 2010. FCHVs first gained widespread recognition for achieving high levels of coverage of vitamin A distribution. Now, with only 18 days of training, they provide family planning, diagnose and treat child illnesses (including childhood pneumonia), distribute misoprostol to pregnant women who plan to deliver at home, and provide home-based neonatal care (Perry and Zulliger, 2012).

Bangladesh has one of the most vibrant NGO sectors in the world, many of whom operate CHW programs. One NGO, BRAC, has the largest private sector CHW program in the world, with over 80,000 workers. They provide comprehensive community-based maternal and child health and family planning services (Perry, 2000). Bangladesh also reached its target for child mortality five years ahead of schedule, although its levels of coverage of key services are still not as impressive as Brazil's, where there are more resources to support health programs (UNICEF & WHO, 2011). CHWs are widely seen as one of the major components of Bangladesh's remarkable progress in maternal and child health, fertility reduction (Perry, 2000).

In sub-Saharan Africa, the model for primary care at the level closest to the community includes one or two community health workers per population of 1000-5000 people. These CHWs are trained to provide basic medical and preventive care (Alem et al., 2008). For instance, in Ethiopia, Medhanyie et al., (2012) reports that Health Extension Workers (HEWs) inform pregnant mothers on safe motherhood when they provide antenatal care (ANC), birth and post natal care (PNC). HEWs also provide family planning services and are trained on how to educate women on the use of iodized salt and HIV testing.

In regard to advice on family planning; 72% of the mothers reported to have received information on this topic from the HEWs. Forty-four percent of the mothers reported having been visited before delivery by HEWs. However, postnatal care and especially assistance during delivery still seem to be a big problem. The majority of

the women (81%) delivered their baby with the help of relatives or friends and only 7% were assisted by the HEWs. Trained traditional birth attendants do better than HEWs in assisting births (20%).

The Kenya Ministry of Health indicates that the work of CHWs is to distribute preventive materials and supplies (ITNs, nutritious foods), Community Based Distribution of Contraceptives (level 1:- pills, condoms). The ministry guidelines also show that CHWs provide universal access to family planning has also been shown to reduce maternal morbidity and mortality as well as improve child survival (RoK, 2012).

2.5 Role of Community Health Workers in referring mothers to enhance Maternal Health Care

WHO (2007) indicates that CHWs possess indispensable knowledge about the challenges faced by patients who seek healthcare. Since they make daily rounds to the homes of the patients and accompany patients to the clinics, community health workers understand first-hand the unique needs of the local patients. They also see the effects of illness and poverty in their community. Their insights are important for shaping healthcare policies and healthcare delivery methodologies.

Partners in Health (2011) observed that with the low number of health professionals, CHWs provide both basic treatment and by referrals community members who would otherwise be unable to access care. Their ability to reach vulnerable patients in their homes means that patient health need not depend entirely on their ability to make frequent clinic visits and travel long distances in search of medical attention

Community health workers function as intermediaries between community and institutional health care services (Kahn, 2008). The Ministry of Health Kenya outlines that the roles of CHWs is to provide IEC on current KAP on safe pregnancy and delivery of a healthy new-born, assist the mother and family to formulate an Individualised Birth Plan, including emergency preparedness and complication readiness, Promote at least 4 focused ANC visits beginning early and skilled birth attendance, Promote PMTCT- Along the continuum of pregnancy, delivery and postnatal period, Promote postnatal care including the use of postpartum FP.

Furthermore, according to RoK (2012), CHWs in Kenya are supposed to promote skilled birth attendance by disseminating key messages to support safe

pregnancy & delivery of a healthy new born and timely referral. A key aspect in ensuring a good maternal health service is a functional referral system. Access to a telephone and/or vehicle, with emergency funds or fuel to transfer urgent cases day or night is extremely important. Good record keeping and use of detailed referral letters will assist in reducing delay in the care for women with obstetric emergencies and severely ill new-borns. Effective communication between health care providers at both the community level and at the point of referral is essential for management of obstetric emergencies and for ensuring continuity of care.

CHWs improve access to care by linking affected communities and the clinics that serve them and by alerting medical staff to ill patients, to families with special needs, and to community concerns (Partners in health, 2011). They liaise between medical professionals and the public (Partners in Health, 2011). CHWs fill many important roles. Mainly they are the glue between their organization and the community. They provide a bridge between the professionals and clients and are able to communicate with both. They share information with the community about health and resources while also being the eyes of the clinic. CHWs improve maternal and child health by connecting community members to antenatal care, referring pregnant women to facility-based services for emergency obstetrical care, preventing neonatal infections.

2.6 Role of Community Health Workers in providing social support and advocacy to enhance Maternal Health Care

Population Council (2012) indicates that CHWs serve as counsellors, helping poor patients overcome the barriers that prevent them from seeking vital maternal healthcare. Patient barriers to care include transportation, lack of awareness, fear, and healthcare costs. Community health workers are knowledgeable about local needs and sensitivities, and thus are in a position to gain their patients' trust and to bring them to the clinics to receive medical treatment.

In another study, Kumar *et al.*, (2008) reported that a package of community based mobilisation and education targeted at improved new born care in rural India led to a 52-54% reduction in neonatal mortality and also improved neonatal care practices. Baquiet *al.*, (2009) documented a 34% reduction in neonatal mortality after 24 months of implementing a package of prevention and curative care through trained

CHWs in rural Bangladesh, with referral for illness or domiciliary antibiotic care when referral was not feasible.

In the United States of America, community health workers also build individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counselling, social support and advocacy (American Public Health Association, 2008). Community health workers are dedicated individuals who function along a continuum ranging from individual and community development to service delivery and promoting community empowerment and social justice. They often help link people to needed health care information and services.

Megheaet *al.*, (2012) studied the impact of CHWs on mother-reported infant health in a study of 530 infants in Kent County, Michigan. Women in the CHW-nurse program received “intensive relationship-based social support” from CHWs. CHWs also build individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counselling, social support and advocacy.

In Kenya CHWs advocate for community leadership support for safe pregnancy and delivery of a healthy new-born Provide community based Essential New-born Care (RoK, 2012). They equally keep accurate records including Mapping of pregnant women in their area. Partners in health (2011) opine that the emotional and informal psychological support that a CHW provides is often as meaningful to community members as their clinic referrals. For example, during HIV outreach, CHWs work to diminish stigma and discrimination through community sensitization. Because CHWs are from the communities in which they work, they can be powerful advocates for community members. They are expected not only to provide medical and psychosocial support, but also to participate in meetings and advocacy activities, build solidarity, and establish a link to healthcare facilities.

In maternal and child services, CHWs provide ante- and postnatal care, advise on family planning and childhood nutrition, increase facility-based deliveries, conduct home visits, formulate birth plans, facilitate home deliveries and respond to obstetric emergencies in Kenya (Izugbara, Ezeh&Fotso, 2009).

2.7 Theoretical Framework

The study was guided by role professional theory presented by O'Brien et al., (2009). Professional roles define a set of work responsibilities and create performance limits where no legal definition exists (Simpson, 2008). Individual characteristics such as gender, educational background, and language proficiency impose limits placed on those roles. Unclear roles can have a substantial impact on the resulting work, potentially causing duplication of effort, difficult work environments, and inefficient operations. In the context of CHWs, an unclear role definition may compromise the quality of patient care, resulting in poor outcomes and wasted programmatic expenditures. To clarify roles, relevant power structures establish rules or policies, such as job descriptions.

According to O'Brien et al (2009), as roles develop greater complexity and pose substantial potential risk to members of society, legal and regulatory mechanisms protect both society at large and the person fulfilling a formal role. This process of role development is particularly evident in the established healthcare workforce of doctors, nurses, and other medical professionals. Role development theory also provides insight into how to create new formal roles, such as CHWs, in the healthcare system. Creating a new formal role requires that the developer identify a need, determine the selection criteria and training requirements, establish performance guidelines, and outline the evaluation process. Failure to do so creates the risk of poor role clarity and inconsistent role performance, with a resulting threat to the quality of work that is produced. In this study, the research assumed that based on the MoH guidelines (RoK, 2012) on the specific roles of CHWs in improving maternal health in Kenya.

2.8 Conceptual Framework

The conceptual framework looked at the relationship between different roles of CHWs in relation to improvement in maternal health situation in Mombasa County, Kenya. The model is given in Figure 2.1.

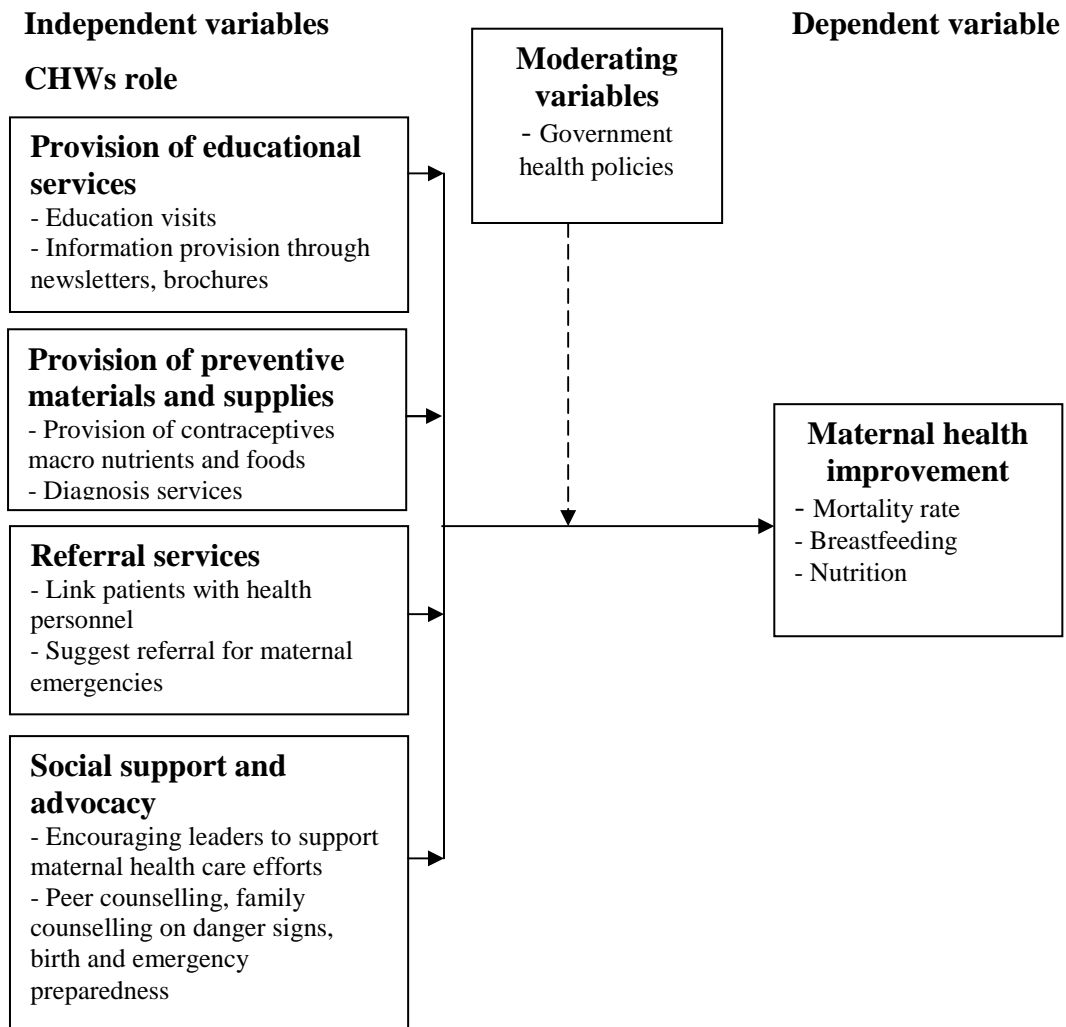


Figure 2.1 Conceptual framework

The independent variables comprise various roles that CHWs play in delivering health services in Mombasa County. These predictors comprise of CHWs act of providing maternal educational services to women, provision of preventive materials and supplies, referral services, social support and community advocacy. It is assumed that the four predictors could influence the maternal health improvement among women and children in Mombasa County. It is important to note that Community health workers are not focused on diagnosis or treatment; they are tasked to help the client and the larger community access medical resources.

The dependent variable is reflected through maternal health improvement. The indicator involves determining the nutritional status of children, the act of breast feeding, birth control and cases mortality rates. The level at which the respondents (mothers who have infants less than 6 months) will indicate regarding their maternal health improvement will be the main measurement for this research.

2.9 Summary of literature and Research Gap

Despite the awareness on the magnitude of maternal death has in the global context as well as importance of these deaths have in country's ability to achieve the MDG4 target next year, literature from Sub Saharan Africa (including Kenya) has shown that there are no specific measurements to indicate how maternal health (of mother and new born) has been reduced for the past decade. This is despite the fact that evidence-based knowledge exist of interventions that have the potential to reduce mortality rate like the involvement of CHWs in addressing mortality rate. The specific roles that CHWs play in reducing mortality rate has not been adequately documented and researched as per the literature reviewed.

Efforts have been made in Western and Asia countries (Brazil, India, Nepal and United States) to decrease maternal health through investment on community health workers but literature on the Kenyan context is missing. Most of the interventions established have been based on global recommendations (UNICEF and WHO). The absence of evidence from Kenya and Mombasa County in particular presents a challenge to the achievement of MDG 4 by next year. This among others formed the study research gap that the study intends to investigate.

The reviewed literature has provided evidence on similar research studies conducted in different geographical settings across the world. The theoretical and conceptual framework has also been covered. The next chapter presents the research design and methodological procedures followed during the study process.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter focuses on the research design used in carrying out the study and they include the target population of the study, the sampling design and the sample size, the data collection instruments and techniques, reliability and validity of research instruments, data collection procedures and the data analysis techniques.

3.2 Research Design

The study was a descriptive survey conducted in Tudor Moroto households with mothers who have babies of 0-6 months. This type of design was used to describe the characteristics or variables in a population by obtaining information on beliefs, variables, or attitudes reported on a survey. This type of design is ideal for measuring the beliefs and attitudes of a large population (Babbie, 2001). The design was chosen because it was suitable in getting detailed descriptive information from the respondents and facilitated the generalizability of research findings to other community health units outside Tudor Moroto. The study was also non- experimental and dealt with situations as they are without having to manipulate variables. Since the events or conditions have already occurred or exist, the researcher selected the variables relevant for the study and analysed their relationships (Patton, 2002).

3.3 Target Population

The target population for this study were all the households that had babies 0-6 months in Tudor Moroto, Mombasa County. Tudor Moroto was purposefully selected as it represents the area with the highest average number of CHWs in Mombasa County (RoK, 2014). Tudor Moroto population is approximately 10,696. However, the study population involved households that had got children below the age of six months. According to the statistics from the Ministry of Health (August 2014), there are around 550 households that have babies 0-6 months being served by 50 community health workers. The 550 households and 50 CHWs formed the study population considering they were available and their locations and workstations were known. Table 3.1 gives the accessible population for the study.

Table 3.3 Target population

Respondent	Population
Households that have babies 0-6 months	550
CHWs	50
Total	600

3.4 Sampling Size and Sampling Procedures

Sampling means selecting a given number of subjects from a defined population as representative of that population. Any statements made about the sample should also be true of the population (Orodho, 2004). Therefore the study considers sampling size and sampling procedures for use in the current study.

3.4.1 Sample Size

According to Mugenda and Mugenda (1999), the main factor considered in determining the sample size is the need to keep it manageable. This enabled the researcher to derive from it detailed data at affordable costs in terms of time, finances and resources. Considering that the population size for CHWs is small, a census was undertaken. But since the population for households that had children below six months is large, a representative sample was determined. The sample size for households that had got children less than 6 months was calculated using statistical formulae provided by Role (2013);

$$n = \frac{N}{1 + Ne^2}$$

Where

n=sample size

N=population size

E=margin of error ($e \leq 0.05$)

Therefore, the sample size for households will be:

$$n = \frac{550}{1 + (550 * 0.05^2)} = 232 \text{ households}$$

Therefore, the final sample size will consist of 50 CHWs and 232 households who had child (ren) aged less than 6 months. This gives a total of 282 responders.

3.4.2 Sampling Procedure

Sampling is a procedure of selecting a part of the population on which research is conducted, and which ensured that conclusions from the study is generalized to the entire population. All 50 CHWs were automatically selected to participate in the study through purposive sampling technique. For households that had children aged less than six months, stratified simple random design was to select the sample size. Systematic random sampling was used to select a sample from members' categories of the total population. Kothari (2004) adds that this method is useful when sampling frame is available in the form of a list. Considering that the research had a master list of the population of households that had got children less than six months, 232 out of 550 household women were selected to participate in the study. This meant that an interval ratio of 2 (550/232) was used to select the population to participate in the study. In such a design, the selection starts by picking some random point in the list and then every n th element are selected until the desired number is secured. A random number was taken; say 7 as a starting point, therefore the next members to be selected were household number 9th, 11th, 13th, and 15th until a population of 232 was arrived at.

3.5 Data Collection Instruments

The study used questionnaires and interview as main primary data collection sources. The questionnaires were for households (particularly women) while interview schedules were conducted for community health workers in Mombasa County. Mugenda and Mugenda (2003) depicts that the use of questionnaire method is advantageous because many of the respondents' information can be captured in an easy, quick and cost effective manner. The questionnaires were structured according to the objectives of the study. The interview schedule also contained open ended question for CHWs on their specific roles that they play enhancing maternal healthcare in Mombasa County.

3.6 Validity and Reliability of the Research instruments

This section looks at how the research instruments were measured for validity and reliability.

3.6.1 Validity

According to Mugenda and Mugenda (2003), validity is the accuracy and meaningfulness of inferences, which are based on the research result i.e. the degree to

which results obtained from the analysis of the data actually represents the phenomena under study. The need to test the content validity of the research instruments is inevitable. This served to ascertain that the items produced were relevant to the objectives of the study. To test validity of the research instruments used in this study, the researcher sought the assistance of the supervisor to ensure that they are valid. The feedback provided was utilized by the researcher to modify the items to ensure that they covered the variables investigated.

3.6.2 Reliability

Reliability is an activity conducted to ensure that the consistency of research measurement tools or the degree to which the questionnaires as a measure of an instrument, measures the same way each time it is used under the same condition with the same subjects (Orodho, 2005). A measure is considered reliable if a research's finding on the same test given twice is similar. Prior to the fieldwork, the researcher carried out a pre-test of the instrument on an adjacent community unit within the same Mombasa County. If a reliability value of above 0.7 is obtained, according to Kothari (2004), a reliability index of 0.7 is considered ideal for the study. The purpose of the pre-test was to see the overall feasibility of the study and specifically pre-test the research instrument for reliability and validity hence, made a few modifications to the study instruments where necessary.

3.7 Data Collection Procedures

As already stated, both qualitative and quantitative methods of data collection were used in the study. The study was initiated after the necessary clearance by Department of Extra Mural Studies. The questionnaires were issued to the women of selected households who filled or answer the questions upon guaranteed confidentiality. Those who could not understand English, the questions were translated to them in Swahili. Prior to data collection, informed consent was obtained from all participants. Formal introductory meetings and information sheets were used. All participants were given the opportunity to refuse to be interviewed or observed without prejudice. Their names and their identities remained anonymous.

In case of illiterate respondents, the questionnaire was interviewer-administered whereby, the researcher asked questions in a face-to-face contact with the respondents. In case of interviewer administered questionnaires, there is room for paraphrase of questions or even translating them to Swahili in order to facilitate the

respondents' easier understanding. The interviewer also collected supplementary information about the respondents' personal characteristics and environment which was important when interpreting the results. It also allowed the interviewer to record the facts obtained through observation of phenomena and body language of the respondents to ascertain truthfulness. However, the use of questionnaires had disadvantages which included giving of wrong information by the respondents as they filled it. This was however minimised during the process of collecting data.

In conducting interviews, the method is essential in obtaining information which respondents are not ready to provide or are not aware of. Key informants who are CHWs by virtue of their work have a direct connection with the issue that is researched on. While conducting interviews, these personalities (key informants) provided more information which could have not been provided by the households representatives and clarify other issues relevant to the study. This included matters specific roles aimed at improving maternal health in the community.

3.8 Data Analysis Methods

Two types of data were collected during the study that is: quantitative and qualitative. Most data was recorded manually on the questionnaires and the first stage of data analysis involved data editing and cleaning. Data was also examined for completeness, consistence and reliability. The second stage involved data coding with the help of Statistical Package for Social Sciences (IBM SPSS Version 20.0). Thereafter, results were analysed in descriptive form using measures of central tendency statistics (means and standard deviation), frequency and percentage according to each of the study objectives. Inferential statistics; correlations was computed at 95% and 99% confidence levels to test the null hypothesis for the study. A qualitative understanding which will be derived from key informant interviews were analysed manually according to each of the study objectives and incorporated with the above findings for eventual results using content analysis. The findings of the study are presented in the next chapter.

3.9 Ethical Issues

The ethical issues that were given special attention in the process of data collection by the researcher as pointed out by Mugenda (2008) included privacy and confidentiality, voluntary and informed consent, anonymity and honesty. As result,

the researcher exercised extra caution to ensure that parties involved were treated with respect and care. This involved employing professionalism, legal and ethical consideration. In this study, the researcher concealed the identity of the respondent, kept confidential data private, and respected respondents' views and beliefs.

3.10 Operationalization of Variable

Table 3.2 presents the research variables matrix that involves the measurement scales to be used, tools of data collection, research instrument to be used and tools that will be used for analysis.

Table 3.2 Operationalisation of variables

Research questions	Measuring Scale	Tools of data collection Survey	Type of analysis	Tools of analysis
What role does CHWs provide in provision of educational services on improvement of maternal healthcare in Mombasa County?	Ordinal and nominal	Questionnaires Interviews	Qualitative and quantitative	Frequencies Percentages Means Chi square Qualitative
What are the roles of CHWs in referring mothers towards enhancing MHC in Mombasa County?	Ordinal and nominal	Questionnaires Interviews	Qualitative and quantitative	Frequencies Percentages Means Chi square Qualitative
What is the role of CHWs in referring mothers in enhancing MHC in Mombasa County?	Ordinal and nominal	Questionnaires Interviews	Qualitative and quantitative	Frequencies Percentages Means Chi square Qualitative
What role does CHWs provide in provision of social support and advocacy in enhancing maternal health care in Mombasa County?	Ordinal and nominal	Questionnaires Interviews	Qualitative and quantitative	Frequencies Percentages Means Chi square Qualitative

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the findings of the study collected from Tudor-Moroto, Mombasa County on the role of community health workers in enhancing maternal health care program in Mombasa County, Kenya. The data for this study was collected through the use of questionnaires from mothers who had children below six (6) months period during the month of September 2014 and interviews to CHWs working within Tudor-Moroto community unit.

4.1.1 Response Rate

The study responses as per the respondents were 217 households and 27 CHWs. Table 4.1 shows the responses rate for the study.

Table 4.1 Response rate

Respondents	Sampled	Response rate	Percent
Households	232	217	77.0%
CHWs	50	39	78.0%
Total	282	244	

The response rate from Tudor-Moroto showed that the researcher achieved more than 75% for both response rate from households and CHWs who participated in the interview process.

4.1.2 Demographic Characteristics of Households Mothers

This involved looking at the personal characteristics of respondents based on their location, age bracket, marital status, literacy level, listenership to radio and participation in income generating activities. This helped the research in understanding the kind of respondents that they engaged in. the analysis of results are given in the subsequent sub-sections.

4.1.3 Location of Respondents

The respondents who participated in the research were asked to state the location that they came from in the larger Tudor-Moroto community unit. The results are illustrated in Table 4.2.

Table 4.2 Location of respondents

Location	Frequency	Percent
Kaachonjo	26	12.0
Msikitini	13	6.0
Paradise	20	9.2
Tudor Mkaa	11	5.1
Island (Kiziwi)	30	13.8
Tudor Island	51	23.5
Tudor Bandarini	3	1.4
Moroto	14	6.5
MorotoBandarini	20	9.2
Mishomoroni	2	.9
Majengoya Simba	1	.5
Sparki	13	6.0
MorotoSimitini	8	3.7
	5	2.3
Total	217	100.0

All villages within Tudor-Moroto area participated in the study. This showed that the research results capture the real situation on how CHWs assist in managing maternal health in the area.

4.1.4 Age Category of Respondents

It was also important to determine the age bracket of respondents that the study dealt with. This could reflect the focus that CHWs have when delivering maternal health services to mothers in Tudor-Moroto. The results are as given in Table 4.3.

Table 4.3 Respondents' age bracket

Category	Frequency	Percent
Less than 20 years	40	18.4
21-25 years	74	34.1
26-30 years	64	29.5
31-35 years	20	9.2
36-40	15	6.9
40 years and above	4	1.8
Total	217	100.0

Table 4.3 results show that 74 (34.1%) of mothers were aged between 21-25 years, 64 (29.5%) were aged 26-30 years, 40 (18.4%) were below 20 years, 20 (9.2%) were 31-35 years and only 4 (1.8%) were found to be 40 years and above. The statistics reveal that the Tudor-Moroto community households' mothers are middle age and therefore form an important group that can easily benefit from MHC services. The targeted group is similar to Wangalwaet *al.*, (2013) survey who established that the mean age of respondents was 25.2 years (SD = 5.6) and 25.9 years (SD = 6.7) at pre-test and post-test respectively.

4.1.5 Marital status of Mothers in Tudor-Moroto

The mothers were also asked to give their marital status. Their responses are given in Table 4.4.

Table 4.4 Marital status of mothers

Status	Frequency	Percent
Married	182	83.9
Single	22	10.1
Separated	7	3.2
Divorced	2	.9
Widowed	4	1.8
Total	217	100.0

Almost all 182 (83.9%) of mothers who participated in the study were married. Only 22 (10.1%) of the sampled respondents were single, 7 (3.2%) had separated with their husbands, 4 (1.8%) were widows and only 2 (0.9%) were divorced. The results shows that most of the respondents are in marriage institutions and this could be due to their religious and cultural behaviours. This response is similar to what Wangalwaet *al.*, (2013) found; eighty-seven percent of women were married.

4.1.6 Women Level of literacy

MHC services involves dissemination of information to prospecting and new mothers, therefore literacy rate is important. The respondents were asked whether they were literature or illiterate, the findings are given in Table 4.5.

Table 4.5 Literacy status

Status	Frequency	Percent
Illiterate: unable to read and write	62	28.6
Literate: Able to read and write	155	71.4
Total	217	100.0

Results show that close to a three quarter, 155 (71.4%) of mothers were literate and only 62 (28.6%) were found to be illiterate. The findings show that most of the respondents were able to read and make a follow-up of CHWs instructions during pregnancy and after delivery. The information also corresponds to age category analysis that showed that majority of women are middle aged 21-35 years and therefore could have benefited from education and adult learning programmes. Furthermore, when asked if they listened to radio, most 141 (65.0%) said yes and only 76 (35.0%) said not. This shows that a significant portion of households are able to hear government communication and awareness campaigns on maternal health improvement.

4.1.7 Participation of Mothers in Income Generating Activities

The study was also interested in finding out whether mothers participated in income generating activities. Their responses are illustrated in Table 4.6 below.

Table 4.6 Participation of mothers in income generating activities

Response	Frequency	Percent
Yes	47	21.7
No	170	78.3
Total	217	100.0

It is evident that majority 170 (78.3%) of mothers are not engaged in any kind of income generating venture and only 47 (21.7%) were found to be engaging in such ventures. The common business ventures that these women engaged in were operating salon, shops/kiosks, small food eatery parlours, boutique/mitumba, farming, cultural/traditional liquor selling (Mnazi) and being employed (maid, family, entrepreneurs, companies).

4.1.8 CHWs Working Experience

The study also sought to know the period through which CHWs had been providing maternal healthcare services to residents of Tudor Moroto. The results of the analysis are given in Table 4.7.

Table 4.7 CHWs working experience

Experience	Frequency	Percent
5-10 years	35	89.7
11-15 years	2	5.1
Below 5	2	5.1
Total	39	100.0

Majority 35 (89.7%) said that they had been offering health care support for a period spanning 5-10 years, 2 (5.1%) said that it is 11-15 years with only 2 (5.1%) indicating that they have less than five years of delivering healthcare services to households. This shows that majority of CHWs are competent in their job due to their work experience. They indicated that they were experienced in the following offering MHC services like advising women on the importance of attending antenatal and prenatal clinics, referrals, health talks, reproductive health, family planning, PMTCT, breast feeding and proper nutrition. Tulenkoet *al.*, (2013) also found out that CHWs who are properly trained, equipped and supported can take on a range of tasks that otherwise depend on mid-level health workers. In USA, Ballester (2005) established that More than 50 distinct services or activities are provided by CHWs in Massachusetts State. These included case identification and recruitment, health education, human service referrals, home visits, client case management that includes follow-up, counselling and other services. CHWs' job descriptions often do not reflect the multitude of tasks they perform.

In a different note, some of CHWs indicated that it has not been easy to offer these services due to resistance from some of the households that are not ready to use family planning methods, other mothers do not believe in breast feeding children up to six months continuously. In relation to the study findings, UNICEF (2004) evidence from Nepal and Bangladesh showed that MHC prevention awareness efforts was extremely hard to sell while curative care was generally more welcomed and

appreciated by the community members. This shows that community members value curative care that is provided by trained health professionals than preventive care provided by CHWs who are untrained health professionals.

4.1.9 Utilisation of Maternal Health Services

As the dependent variable for the study, the study wanted to know the level of maternal health care by households in Tudor-Moroto community unit in Mombasa County. Utilization of maternal health services was collected using the following variables: family planning, antenatal care, health facility delivery, postnatal care, HIV testing and use of iodized salt. Through a scale of utilisation: (1) never, (2) rarely and (3) always. The results of the analysis are given in Table 4.8.

Table 4.8 Descriptive statistics utilisation of maternal health services

Utilisation rate	N	Mean	Std. Deviation	Rank	Utilisation rate
Attendance of health facility during delivery	217	2.7880	.54539	1	Always
Attendance of antenatal during pregnancy	217	2.7742	.54406	2	
HIV testing	217	2.7604	.53376	3	
Use of iodized salt	217	2.7512	.64751	4	
Using contraceptives for family planning before and after pregnancy	217	1.9816	.89216	5	Rarely
CHWs visit to my home 24 hours after delivery of my youngest child	217	1.7097	.87852	6	
Valid N (List wise)	217	2.4609	0.67357		

Results shows that the respondents tended to frequently attend health facilities during delivery mostly (M=2.78 and SD=0.54). The low standard deviation scores reveal that the respondents agreed with the statement. Secondly, they said that they always (M=2.77 and SD=0.54) attend antenatal clinics during pregnancy. Thirdly the respondents also agreed that they always (M=2.76 and SD=0.53) go for HIV testing during their pregnancy. The results are in line with Global Health Workforce Alliance (2010) results from Zambia that showed that there were significant contributions to

PMTCT activities by CHWs' and this revealed that their continuous involvement considerably improved women's participation in MHC programmes. These findings support a growing international consensus that HIV-positive individuals are distinctively positioned to connect with pregnant women as peers, foster trusting relationships, and draw on these connections to guide women through the complex PMTCT process.

Fourthly, the women also said that they always ($M=2.75$ and $SD=0.64$) use iodised salt during their pregnancy. However, results of the study showed that the mothers rarely used ($M=1.98$ and $SD=0.89$) contraceptives for family planning before and after pregnancy. The standard deviation are closer to 1 suggesting that some respondents utilised the method while others did not and this could be due to their cultural and religious backgrounds. In addition to that the respondents also seemed to agree with the statement that CHWs rarely ($M=1.71$ and $SD=0.87$) visit their homes 24 hours after delivery of their youngest child. On average, results shows that the utilisation rate of maternal healthcare services is on average ($M=2.46$ and $SD=0.67$). This suggests that the uptake of maternal healthcare programme is on average amongst households within less than 6 months children in Tudor Moroto area. The findings of the research are in agreement with Medhanyieet *al.*, (2012) survey research in Ethiopia that found out that about 37% of the women had good utilization of maternal health services while the rest had poor utilization. This was evidenced whereby more than half (67%) of the women had ever used contraceptives while 38% of them were current users. ANC visit at health facility was reported by 85% of the women. In Contrast to the results of the study, Medhanyieet *al.*, (2012) found out less than half (48%) of the women had the World Health Organization (WHO) recommended 4 and more ANC visits in Ethiopia. A small number (5%) of the women said that they gave birth at the health facility. A similar percentage (5 %) of the women had PNC check-up. More than three quarters (85%) of the women had been tested for HIV. Iodized salt was found in only 13% of the women's households which is in contrast to what the study found in Mombasa. This shows that CHWs in Mombasa have done a considerable effort in ensuring that almost 50% of women who have child (ren) aged less than 6 months utilize MHC services. The assertion made is justified by Wangalwa et al., (2013) who found out that there were significant

changes in essential maternal and newborn care practices of ANC attendance, skilled deliveries and exclusive breastfeeding.

4.1.10 Sources of Maternal Health Services

After finding out the uptake of MHC, the respondents were further asked to give the sources of maternal health services they said in the previous findings. The results are given in Table 4.9.

Table 4.9 Sources of maternal health services

	Services	Frequency	Percent
Source of family planning method	Health centre	113	52.1
	Dispensary	19	8.8
	CHWs	17	7.8
	Private hospital	1	.5
	N/A	67	30.9
	Total	217	100.0
Place visited for antenatal care	Health centre	177	81.6
	Dispensary	24	11.1
	CHWs	6	2.8
	Did not go to any facility	5	2.3
	Private hospital	5	2.3
	Total	217	100.0
Place of birth of the youngest child	Home	20	9.2
	Private hospital	8	3.7
	Dispensary	6	2.8
	Health centre	170	78.3
	At midwife place	8	3.7
	At CHWs place	2	.9
	Coast General Hospital (CGH)	3	1.4
Total	217	100.0	

		23	10.6
Where the health worker checked for baby	Home		
	Private hospital	3	1.4
	Dispensary	10	4.6
	Health centre	150	69.1
	N/A	31	14.3
	Total	217	100.0

Results shows that half 113 (52.1%) of respondents sourced MHC family planning services from health centre, 19 (8.8%) obtained the services from dispensaries, 17 (7.8%) from CHWs and only 1 (0.5%) received the services from private hospital. The finding corresponds to Medhanyieet *al.*, (2012) who found out the utilization of health facilities for family planning and ANC by women was relatively higher. The results further showed that majority 177 (81.6%) received antenatal services from health centre, 24 (11.1%) from dispensaries, 6 (2.8%) received the antenatal services from CHWs, 5 (2.3%) from private hospital and 5 (2.3%) did not go to any facility for the said services. Regarding the place where they delivered their young child (ren), majority 170 (78.3%) delivered at health centres, 20 (9.2%) at home, 8 (3.7%) in private hospitals and at mid-wife place and only 2 (0.9%) delivered with the help of CHW. This shows that the households have embraced safe delivery by taking the initiative to visit health facilities. This result is in contrast to Medhanyieet *al.*, (2012) research in Ethiopia that found out that majority of the women (81%) delivered their baby with the help of relatives or friends and only 7% were assisted by the CHWs. Trained traditional birth attendants do better than CHWs in assisting births (20%). This shows that the Tudor-Moroto CHWs have made efforts to ensure pregnant women delivery in the nearest health facilities although some admitted that some women relied on TBAs help during their pregnancy period.

The activities of CHWs in referring mothers to go for safe deliveries in health facilities are bearing fruit. Moreover, when asked as to whether any a health worker visited the baby after delivery, 150 (69.1%) said that they went to the health centre, 31 (14.3%) were never visited, 23 (10.6%) said that health worker(s) visited them, 10

(4.6%) went to local dispensary to see the health worker while 3 (1.4%) visited private health facility for check-up of their new born child. The result on sources of MHC services mainly comes from health centres within Tudor Moroto. This is in agreement to Wangalwaet *al.*, (2013) who found out that household members had been empowered by CHWs to make healthy decisionsto respond to maternal and neonatal health needs. The strengthenedlinkages between the community and dispensaries and health centersenabled effective referrals from the community.

4.2 Role of CHWs in Providing Educational Services to Enhance MHC

The first objective of the research was to investigate the role of CHWs in providing educational services towards enhancing maternal health care in Tudor Moroto unit of Mombasa County. Through a Likert Scale of five 1-Strongly Disagree to 5-Strongly Agree, the household members were asked to rate their responses. Means and standard deviations for the three statements on educational services were computed and the results arranged using descending means and are presented in Table 4.10.

Table 4.10 Role of CHWs in providing educational services to enhance MHC

Role	N	Mean	Std. Deviation
CHWs provided advice on new born care seeking including immunisation	217	3.2995	1.40028
CHWs usually advice on warmth and promoting early and exclusive breastfeeding	217	3.189	1.4739
CHWs promote skilled birth attendance by disseminating key message to support safe pregnancy and delivery of a healthy new born	217	3.1244	1.38384
Valid N (List wise)	217	3.2043	1.41934

The findings shows that CHWs tended to provide advice on new born care more (M=3.29 and SD=1.40), as compared to advice on warmth and early breast feeding (M=3.18 and SD=1.47) and promotion of skilled birth attendance by disseminating key message to support safe pregnancy and delivery of a healthy new born (M=3.12 and SD=1.38). Computed average results reveal that the respondents had mixed reactions (M=3.20 and SD=1.41) on the CHWs role in providing educational services to enhance MHC in Tudor Moroto. The result suggest that the women

rarely/occasionally receive information and advices on maternal healthcare from CHWs and this could influence the increased mortality cases for new born babies in the area. The results are similar to what UNICEF (2004) found in South East Asian countries whereby CHWs were best able to carry out clearly defined, concretetasks over a short and specific time period such as national healthcampaigns (Vitamin A distribution, polio campaigns etc.) rather thancarrying out broad-based activities such as health education. However, the results are inconsistent with Perry and Zulliger (2012) observation across several countries that found that CHWs made home visits to educate expectant and post-partum mothers about good nutrition, danger signs of complications during pregnancy and childbirth, cleanliness during delivery and care of the new-born. Home visits also include facilitating home deliveries and monitoring new-borns for signs of neonatal infection and for antibiotic treatment and referral, if necessary. The responses made by women could be as a result of inadequate number of CHWs operating in Tudor-Moroto community unit. It should also be taken into consideration that increased burden of work and excessivetime commitment for multiple tasks could overwhelm volunteers and in-turn, negatively affect their performance and the program.

4.3 Role of CHWs in Provision of Preventive Materials and Supplies in Enhancing MHC

The second research objective was to investigate the role of CHWs in providing preventive materials and supplies towards enhancing MHC in Tudor Moroto. The household members were asked to rate the extent to which preventive materials and supplies were provided to them during and after their pregnancy on a Likert scale of five which was reduced to three; agree, disagree and undecided at the analysis stage. The results are illustrated in Table 4.11.

Table 4.11 Role of CHWs in provision of preventive materials and supplies in enhancing MHC

Provision of preventive materials and supplies	Agree		Undecided		Disagree		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
CHWs provide community based distribution of contraceptives (pills, condoms)	120	55.3	17	7.8	80	36.9	217	100.0
In the past twelve months, CHWs had visited me and talked about family planning	117	53.9	17	7.8	83	38.2	217	100.0
The CHWs advice on maternal emergencies	107	49.3	21	9.7	89	41.0	217	100.0
The CHWs provide distribute preventive materials and supplies (ITNs, nutritious foods)	129	59.4	15	6.9	73	33.6	217	100.0
Average statistics	118	54.5	18	8.1	81	37.4	217	100.0

Results on the statement that “CHWs provide community based distribution of contraceptives (pills and condoms), at least 120 (55.3%) agreed with the statement, 17 (7.8%) were undecided while 80 (36.9%) disagreed. This showed that CHWs have been able to cover half of the households in Tudor Moroto and therefore a significant do not benefit from the supply of contraceptive pills and condoms. The level of provision of FP supplies is in contrast to Perry and Zulliger (2012) who found out that CHWs also had a long and distinguished history of promoting family planning through home visits, distributing oral birth control pills and condoms.

Secondly, when asked as to whether in the past one year, CHWs had visited them and talked to them about family planning, at least half 117 (43.9%) agreed that they came, 17 (7.8%) were undecided and a considerable number 83 (38.2%) disagreed. The

result also confirms that CHWs rarely make home visitations to educate the households on the importance of family planning. Family planning reduces HIV transmission by reducing the number of pregnancies in HIV-infected women. Thirdly, it was evident that about a half 107 (49.3%) of households received advice on maternal emergencies, 21 (9.7%) received them on occasional basis while 89 (41.0%) did not receive these services from CHWs. Therefore incidences of maternal emergencies happening are common occurrence among residents living in Tudor Moroto. Lastly, on a positive note a majority 129 (59.4%) of respondents agreed with the statement that CHWs provide distributive preventive materials and supplies such as nutritious food to pregnant and lactating mothers, 15 (6.9%) were neutral while 73 (33.6%) indicated that they have never received these supplements during and after their pregnancy from CHWs. Computed average statistics on the role of CHWs in provision of preventive materials reveal that only 54.5% of the total population have been reached while 81 (37.4%) have not yet received the preventive material from CHWs and this could be one of the reasons for increase maternal health cases in the area.

4.4 Role of CHWs in Referring Mothers to Enhance MHC

CHWs are not supposed to treat patients at their homes as they are not considered to be trained health workers (e.g. nurse, doctor), however, considering the training they have undergone, they can detect and help patients in some cases but when the problem requires full medical attention, they make referrals for patients to visit dispensaries, health centres or hospital for further diagnosis, testing and treatment. Therefore, the third objective of the study was to establish the extent to which CHWs made referrals for pregnant and new mothers to seek treatment to health facilities. Using similar scale as in objective two, the respondents were asked to indicate their level of agreement on the extent to which CHWs made referrals during and after pregnancy. The descriptive analysis results are presented in Table 4.10.

Table 4.10 Role of CHWs in referring mothers to enhance MHC

Role of making referrals	N	Mean	Std. Deviation
CHWs advice on seeking antenatal care	217	2.9263	1.41882

CHWs link us with health personnel in dispensaries and health centers	217	2.9263	1.41882
CHWs provide advice on early referral for maternal emergencies	217	2.8894	1.40328
Valid N (List wise)	217		

The results of the study shows that the CHWs occasionally (M=2.92 and SD=1.41) provide advice to households seeking antenatal care, they also tended to have mixed reactions (M=2.92 and SD=1.41) on the statement that CHWs linked them with health personnel in dispensaries and health centers. This is different to what Khan (2009) found out in Brazil whereby CHW's role acted as liaison between the community members and the health professionals. Khan found out that community members depended on the CHWs to resolve varied issues from filling a prescription to keeping tabs on a neglectful mother and they are able to approach CHWs informally, in a way they are not able to seek out health professionals. The CHWs, in turn, need the support of the health professionals in order to full fill their responsibilities. The most common task of the CHW is referring community members to see the health professionals. The health professionals, however, also are unable to do their work without the CHWs updating them on the health of community members. UNICEF (2004) study in several nations in South East Asia also found out that CHWs can be extremely effective to work as a complimentary force promoting utilization of available health services and the link between the community and the health system.

The results further showed that the respondents remained undecided (M=2.88 and SD=1.40) on the statement that CHWs provided advice on early referral for maternal emergencies. The findings implies that the level of referral that CHWs make to households is still on average as it is proved by high standard deviation scores (above 1) that shows that some agreed that they had been informed while others had not. This is supported by Wangalwaet *al.*, (2013) who emphasized that there is need for community-based governance structures to organize and coordinate the activities of CHWs at community level, and linking the community with the formal health care system facilitated change in essential maternal and newborn care practices.

4.5 Role of CHWs in Providing Social Support and Advocacy to Enhance MHC

This is the fourth objective of the study sought to determine the role of CHWs in providing social support and advocacy to enhance MHC services among households in Tudor-Moroto. The respondents were asked to indicate their level of agreement/disagreement on the extent to which social support and advocacy services on MHC were provided to their households by CHWs. The analysis of results is illustrated in Table 4.11.

Table 4.11 Role of CHWs in providing social support and advocacy to enhance MHC

Social support and advocacy	Agree		Undecided		Disagree		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
CHWs advocate for community leadership support for safe pregnancy and delivery of healthy new born	102	47.0	21	9.7	94	43.3	217	100.0
CHWs visited me immediately after delivery of my youngest child	123	56.7	16	7.4	78	35.9	217	100.0
CHWs visited me during the pregnancy period of my youngest child	114	52.5	19	8.8	84	38.7	217	100.0
CHWs advised on postnatal home self-care, nutrition, safe sex, breast care	101	46.5	16	7.4	100	46.1	217	100.0
Average statistics	110	50.7	18	8.3	89	41.0	217	100.0

Almost half 102 (47.0%) of respondents agreed that CHWs advocate for community leadership support for safe pregnancy and delivery of healthy new born, 21 (9.7%) were undecided while 94 (43.3%) disagreed. This shows that CHWs have not delivered to their best when advocating for community leadership support and initiative towards sensitising the people on the importance of safe pregnancy and motherhood. However, when asked whether CHWs visited them immediately after

delivery of their youngest child, 123 (56.7%) agreed, 16 (17.4%) were undecided while 78 (35.9%) disagreed. This shows that CHWs are making efforts of reaching every household that has a new-born baby within their area of jurisdiction to ensure that they offer medical advice and support to the new born baby and mother. The results are supported by Medhanyieet *al.*, (2012) research in Ethiopia that found out that forty-four percent of the mothers reported having been visited before delivery by CHWs. However, postnatal care and especially assistance during delivery still seem to be a big problem.

In addition, the respondents also agreed 114 (52.5%) that CHWs visited them during their last pregnancy, 19 (8.8%) were undecided while 84 (3.8.7%) disagreed. This implies that although the number of CHWs is low compared to the households they are supposed to manage, some get time of visiting the pregnant ladies to offer maternal healthcare services. The results further showed that 101 (46.5%) of respondents tended to agree that CHWs advise them on post-natal home self-care nutrition, safe sex and breast care during and after their pregnancy. On average, half 110 (50.7%) of households indicated that CHWs always provide social advocacy and support, 18 (8.3%) acknowledged that this happens on occasional basis while 89 (41.0%) said that they have never witnessed CHWs providing social advocacy support. In agreement to this study, Khan (2009) research in Brazil found out that CHW's job is dynamic and constantly caters to current and day-to-day issues in the community. Community members seek CHWs out to help resolve personal and community issues. O'Brien et al., (2009) also found out that CHWs provided social support and teaching and reinforcement.

4.6 CHWs Responses on the Responsibilities they undertake in providing MHC Services

The CHWs members interviewed were asked to indicate the responsibilities they undertook in the provision of maternal healthcare services to households in Tudor Moroto. The qualitative results were converted to numeric codes and are presented in Table 4.12.

Table 4.12 CHWs responses on the responsibilities they undertake in providing MHC services

Responses	Frequency	Percent
Home visits, health talks, and distribute mineral supplements	20	51.3
Home based care, TB, family planning	11	28.2
Referrals of patients to health facilities	8	20.5
Making sure that all mothers who are pregnant to attend to antenatal clinics, to give health talk to mother on how to breastfeed a child	6	15.4
Provision of FP commodity, take care of those that are pregnant, follow up and counseling, follow up on HIV positive mothers, accompanying them to hospital	5	12.8
BP check, the well-being of the mother, urinalysis check, referral for PMTC	3	7.7

Results shows that half 20 (51.3%) of CHWs make home visits, provide health talks and distribute mineral supplements to households in the area. They also said that they do make referrals in serious cases that they encounter during their visits. It is also evident that others accompanied pregnant mothers to hospitals, made a follow up on the condition of pregnant women while others conducted routine medical checks like blood pressure, urinalysis and provision of family planning supplies. The responses made by CHWs concurs with Perry and Zulliger (2012) assertions that CHWs are effective at promoting immunization utilization, identifying children who have need immunizations, expanding immunization coverage, and providing immunizations. When CHWs provide various combinations of these interventions together, often along with other types of primary health care services, reductions in under-five mortality have been achieved.

4.6.1 Respondents' Opinion on the Role of CHWs towards Promoting Maternal Healthcare in Tudor Moroto Area

Through open-ended questions, the respondents were asked to give their opinion on how CHWs provided maternal healthcare services to households in Tudor

Morotounit. The findings in qualitative form were coded using numbers and presented in Table 4.13.

Table 4.13 Respondents opinion on the role of CHWs towards promoting maternal health in Tudor Moroto area

Perception	Frequency	Percent
They are good in providing maternal health care services	99	45.6
They don't support well the pregnant and new mothers because they are not available	50	23.0
The household numbers is high and the CHWs are few, so they need to be increased	41	18.9
Increase their services	40	18.4
Should be available	26	12.0
Should have keen interest on the young mother/lactating ones	7	3.2

Majority 99 (45.6%) of household members felt that CHWs are good in providing maternal health care services to pregnant and new born baby mothers in Tudor Moroto area. However, 50 (23.0%) opined that consider the few number of CHWs available in the area, some of they have not received support from them. This is also explained by 41 (18.9%) of them who observed that the household numbers is high and the CHWs are few, so they need to be increased. A considerable number of respondents 40 (18.4%) noted that CHWs need to increase their maternal health services to cover diverse needs of pregnant and new born baby mothers, 26 (12.0%) observed that CHWs should be readily available while 7 (3.2%) suggested that CHWs should have keen interest on the young and lactating mothers. The responses made by women suggest that CHWs play a critical role in ensuring adequate and standard maternal healthcare services is provided to community members.

4.6.2 CHWs Responses on the Impact of Maternal Healthcare Services Provision

After ascertaining the perception of household members on the effect of MHC services provision, the CHWs interviewed were asked to give their opinion on the

impact of maternal healthcare services that they provided. For instance CHW No. 5 opined that:

“In my area, I experienced early pregnancy cases among under-age girls, I have now talked to them and now the cases have reduced significantly.”

Another CHW No. 17 remarked that:

“The impact of family planning programme shows that uptake has increased, women are now delivering in health facilities, the households are going for cancer screening and women have now understood the importance of PMTCT.”

Moreover, CHW No. 19 said that:

“I have experienced on how to encourage mothers who are pregnant to attend antenatal and postnatal clinics and to know the goodness of immunisation and breastfeeding their kid(s) as from 0-6 months.”

The finding implies that there is a positive impact of the CHWs roles in providing maternal healthcare services to households in Tudor Moroto. This is supported by Wangalwaet *al.*, (2013) who established that there was significant increase in essential maternal and neonatal care practices demonstrates that, community health strategy using CHWs was an appropriate platform to deliver community based interventions.

4.6.3 Challenges Experienced by CHWs in Provision of MHC

Despite majority of CHWs acknowledging positive impact of provision of maternal healthcare services, they were asked to indicate challenges that they encountered. The results of the analysis are presented in Table 4.14.

Table 4.14 Challenges experienced by CHWs in provision of MHC

Perception	Frequency	Percent
Ignorance in women	9	23.1
Sometimes you encounter resistance and they are not ready to listen to you, they think you are wasting their time	8	20.5
Inadequate training on provision	8	20.5
Some are ignorant and not available during the day, some need more time and IEC for health talks and health issues	7	17.9
Family planning options short comings resulting to either discontinuity the use of pills and other birth control methods	7	17.9
Cultural factors	5	12.8
Inadequate equipment and drugs like pain killers, gloves,	2	5.1
Religious beliefs	2	5.1

The CHWs lamented that illiteracy among some households members affected effective delivery of MHC services in Tudor Moroto. For instance, some women would fail to follow proper medications despite numerous visits and talks by CHWs. On the CHWs parts, some complained that they did not have adequate training on how to conduct MHC. They cited that they have not undergone any training for the past one year. Other challenges identified were; reluctance of households to cooperate, laziness of some household members, short-comings from use of family control methods, inadequate equipment, inadequate drugs, religious background and cultural factors. Unexpectedly, even in the United States of America, Ballester, (2005) found out that challenges experienced by CHWs was that; there was no formal career ladder for community health workers, CHW wages are low, CHW job security is impacted by unpredictable funding, CHW turnover was high and CHWs were eager to receive additional training. In South Asia, UNICEF (2004) found out that except India, all countries reviewed did not pay salaries or provide any kind of monetary incentives to CHWs, because the governments did not consider the salaries to be sustainable. For instance, Nepal started with a provision of small allowance per month (less than \$2), it was discontinued after the first year as this could not be sustained by the government. The same could be said of Mombasa County whereby CHWs

complained that they did not receive any monetary support from the county or national government.

4.6.4 Respondents' Suggestions on how to Improve CHWs Roles in Delivery, Advice and Provision of MHC

Lastly, it was important for the research to sought respondents views and recommendations on how CHWs role in MHC can be improved through the action of all actors in the health sector. Table 4.15 gives their views.

Table 4.15 Respondents' suggestions on how to improve CHWs roles in delivery, advice and provision of MHC

Suggestion	Frequency	Percent
Increase CHWs numbers per area / households	56	25.8
Should come more often	52	24.0
CHWs should be trained and loaded with more skills	42	19.4
CHWs should be updated on health education	34	15.7
Should improve their services at communal level	31	14.3
Motivating them	18	8.3
Building of health facility	18	8.3
Provide them with resources and facilities	17	7.8
CHWs to improve communication skills	11	5.1
Mobile clinics	10	4.6
CHWs to work with doctors closely	4	1.8
CHWs to be reshuffled	4	1.8

Results show that the community members suggested that there is need for CHWs numbers to be increase per households, the current number is too high and some households did not receive the services during and after pregnancy period. They also suggest that regular and occasional visits should be encouraged and that continuous training is important to update the CHWs with current maternal healthcare information. These among other suggestions made are important in improving maternal healthcare service level in Tudor Moroto. In Asia, UNICEF (2004) recommended for provision of training stipend, earning an income through selling medicines and possibility of future employment opportunities are the motivational

factors for improving CHWs activities on delivering MHC services to community. But, evidence has shown that monetary incentives often bring a host of problems: money may not be enough, may not be paid regularly or may stop altogether (e.g. Nepal and India). Hence, non-monetary incentives are critical to the success of any CHW programs. Additionally, the role of CHW that required them to deliver curative services rather than just promoting utilization of available health services seems to greatly increase their motivation level.

4.6.5 CHWs Suggestions on how Challenges Related to MHC Services Provision can be improved

Lastly, the CHWs were asked to suggest possible measures through which MHC services provision can be improved to reduce maternal illness and death in Tudor Moroto. According to CHW No. 21,

“A lot of sensitization and follow up of health matters. To increase more health talks and formation of more groups especially the young mothers group.”

Another CHW No. 25 observed that:

“Proper teaching and availability of information before taking the family planning options, thorough counseling of mothers and provision of enough food supplement.”

In addition, CHW No. 2 opined that:

“Put some mobile clinics, readily accessible for mothers and their babies, this will reduce the mortality rate.”

Based on the researcher analysis of qualitative information on the measures to be introduced is that almost all of them suggested that they required training.

4.7 Hypothesis Testing

The study sought to test the hypotheses that were used in the study. Chi square was used to compute whether the relationship was significant among the four alternative hypotheses or not.

Ha₁ CWHs play a significant role in offering educational services to enhance maternal health care in Mombasa County

To test the alternative hypothesis, a chi square analysis was conducted at 95% significant level. The results are shown in Table 4.16.

Table 4.16 Chi-Square test on educational services and MHC

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.345 ^a	4	.035
Likelihood Ratio	11.159	4	.025
Linear-by-Linear Association	5.433	1	.020
N of Valid Cases	217		

The chi square results shows that there exist a significant ($p=0.035$) relationship on CHWs role in offering educational services towards enhancing maternal healthcare services to women in Tudor Moroto ($p<0.05$). Therefore the alternative hypothesis is accepted. The finding implies that continuous provision of educational services to households would automatically lead to high utilization of MHC services.

Hypothesis 2

Ha₂ CHWs play a significant role in provision of preventive materials to enhance maternal health care in Mombasa County

To test the second alternative hypothesis of the study, chi square analysis was computed at 0.05 significance level. The results are given in Table 4.17.

Table 4.17 Chi square test on provision of preventive materials and MHC

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.777 ^a	4	.003
Likelihood Ratio	16.751	4	.002
Linear-by-Linear Association	10.812	1	.001
N of Valid Cases	217		

Computed chi square statistics shows that there exist a significant ($p=0.003$) relationship between provision of preventive materials and enhancement of maternal healthcare in Mombasa county ($p<0.05$). Therefore, the alternative hypothesis is accepted leading to the conclusion that CHWs play a significant role in provision of preventive materials to enhance MHC in Tudor Moroto. This implies that CHWs needs to be provided with more preventive materials supply to reach the wider target households and this would improve maternal healthcare.

Hypothesis 3

Ha₃ CHWs play a significant role in referring mother to enhance maternal health care in Mombasa County

To test the third alternative hypothesis of the study, a chi square was computed at 0.05 significance level. The results are presented in Table 4.18 below.

Table 4.18 Chi-square tests on referrals and MHC

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.284 ^a	4	.015
Likelihood Ratio	12.725	4	.013
Linear-by-Linear Association	7.793	1	.005
N of Valid Cases	217		

Chi square statistics reveal that there exist significant ($p=0.015$) relationship on CHWs role in referring mother to enhance maternal healthcare. Henceforth, the alternative hypothesis is accepted ($p<0.05$) leading to the assertion that CHWs efforts in advising mothers to go for further treatment and checkup in health facilities improves maternal health care significantly.

Hypothesis 4

Ha₄ CHWs provide a significant role in provision of social support to enhance maternal health care in Mombasa County

This is the fourth alternative hypothesis for the research that looked at the relationship between provision of social support and enhancement of maternal healthcare in Tudor Moroto community unit. Therefore, a chi square analysis was done at 0.05 confidence level. The results are presented in Table 4.19.

Table 4.19 Chi-Square test on CHWs social support and MHC

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.357 ^a	4	.015
Likelihood Ratio	10.763	4	.029
Linear-by-Linear Association	3.722	1	.054
N of Valid Cases	217		

Chi square results shows that there exist significant ($p=0.015$) relationship between social support and utilization of MHC services in Tudor Moroto. This leads to

acceptance of alternative hypothesis that CHWs provide a significant ($p < 0.05$) role in provision of social support and advocacy in enhancing maternal healthcare.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the summary of the major findings of the study, conclusions, implications, recommendations and suggestions for further studies on the role of community health workers in enhancing maternal healthcare program in Tudor Moroto community in Mombasa County, Kenya.

5.2 Summary of Findings

The purpose of conducting this research was to determine the specific roles that CHWs in Tudor Moroto played in reducing maternal mortality cases. This involved getting responses from CHWs and households mothers who had kids who were less than 6 months. The study utilized questionnaires that were administered to respondents and interview schedule from CHWs. The data collected was analyzed using descriptive and inferential statistics for quantitative data while thematic content analysis was used to analyse qualitative data. Results of the study were presented in tables and narrations in the previous chapter. The response rate for the research was high with households recording over 75% response rate.

5.3 Discussions

It was discovered that close to 90% of CHWs had been in the career for a period of more than 5 years. Community Health Workers were shown to provide a range of preventive interventions for Maternal and Child Health services in Tudor Moroto community unit. The results agrees with Medhanyie *et al.*, (2012) research in Ethiopia that found out that HEWs have contributed substantially to the improvement in women's utilization of family planning, antenatal care and HIV testing services. In regard to advice on family planning; majority of the mothers reported to have received information on this topic from the CHWs. Even in Kenya, Wangalwa *et al.*, (2013) also established that CHWs played a significant role in promoting MHC. There was statistically significant ($p < 0.05$) increase in attendance of at least four antenatal care visits (39% to 62%), deliveries by skilled birth attendants (31% to 57%), receiving intermittent preventive treatment (23% to 57%), testing for HIV

during pregnancy (73% to 90%) and exclusive breastfeeding (20% to 52%). This shows the effectiveness of CHWs in promotion of maternal health services.

On the utilization of MHC services, it was found out that women preferred attending pre and post natal clinics more as compared to use of family planning contraceptive pills. This presumed to be as a result of ignorance or the influence of social, cultural and religious practices that people are tied to in Tudor Moroto. In average, the utilization of maternal healthcare services was found to be on average. This was due to the fact that the population of households was high in comparison to the number of CHWs available. It was also found out that the average utilization rate was due to the fact that majority of CHWs did not have adequate materials (gloves) and medications to help women in the area. The main source of MHC information came mostly from health center rather than from CHWs and this justifies the reason that only 50% of households in Tudor Moroto received CHWs maternal healthcare services.

On the provision of educational services, results of the study showed that women rarely received information and advice on maternal health care from CHWs. They acted as the link between health facilities and patients. This finding is supported by Khan (2008) research in Brazil that found out that CHWs acted were the link between health services and community members' health. This is because; the goal of the government and other donors is prevention of maternal mortality, which requires the CHWs to proactively connect the community members with the health services. The health services itself, providing immunizations, would be ineffective without CHWs. The results of the study further showed that due to few numbers of CHWs and their lack of adequate skills and knowledge on enhancing MHC, this affected the provision of MHC services to the deserving population in Tudor.

On the provision of preventive materials and supplies, only 54.5% of the population received and this could be the reason for increased maternal illnesses and mortality in the region. However, it was found out that some preventive materials like FP pills reacted negatively on some women and this could be due to inadequate knowledge and skills that CHWs possessed regarding the type of FP to be administered. Other respondents shunned the provision of mineral and food supplements due to their ignorance and lack of adequate information. The results does not coincide with

Medhanyieet *al.*, (2012) who found out that the contribution of HEWs in promotion of use of iodised salt among women was insignificant. Even in US, Perry and Zullinger (2012) established that regular home-based distribution of micronutrients to pregnant women, principally iron and folate, by CHWs has been associated with favorable results for birth weight and mortality in neonates and pre-term infants: intrauterine growth restriction is reduced by 14%.

The research also found out that CHWs advised households to go for antenatal care more often ($M=2.92$ and $SD=1.41$) as opposed to making referrals to them for maternal emergencies which had a lower mean score ($M=2.88$ and $SD=1.40$). The reason for non-referral was due to transportation costs problems and non-availability of health facilities in some areas. However, the respondents suggested that introduction of mobile clinics would reduce referral cases as households could be attended by medical officers at their homesteads.

Lastly, it was found out that only 50.7% of CHWs played their role in providing social advocacy support for maternal health care services in Tudor Moroto. This could have significant impact on the delivery of MHC services. The CHWs also were found to promote exclusive breastfeeding programmes. This result is supported by Perry and Zullinger (2012) who concluded that the odds ratio (a measure of intervention effectiveness) is 5.6 meaning that the odds of exclusively breastfeeding is 5.6 times greater for women counselled by CHWs than for women who were not. A basic lesson from this survey in Mombasa is that CHWs must be adequately supported and such adequate support requires more resources from the government or communities than what are spent now on CHW programs.

5.4 Conclusion

The study found out the role of community health workers in enhancing maternal healthcare programme in Tudor Moroto area stands at approximately 50%. Despite this, the hypothesis tested for the study were all true ($p<0.05$) meaning that CHWs played a significant role in enhancing maternal healthcare of young mothers in Mombasa. Activities that the CHWs engaged in stretched from offering reproductive health services, family planning, training on the importance of PMTCT, advising women on the importance of attending pre and postnatal clinics, social advocacy and

support, referrals, linking households with health personnel, proper nutrition, importance of breast feeding among other presented earlier. In addition to delivery care, CHWs can provide antenatal and postnatal care. The role of CHWs in distributing supplements to eliminate these micronutrient deficiencies is critical.

CHWs have played a role in promoting of AIDS-related educational messages, providing supportive care of AIDS patients, and assisting with clinic services. More recently, CHWs are carrying out voluntary counselling and testing and provision of directly observed treatment in the community outside of facilities has been reported. The role of the CHWs to improved utilization of maternal health services is greatest in relation to family planning and ANC.

The study established that average intake of MHC services was due to inadequate training provided by the government to CHWs, lack of financial and non-financial motivations to CHWs, unavailability of healthcare facilities, inadequate provision of current MHC resource materials, inadequate supply of MHC supplements and materials, poverty, high population rate, social, religious and cultural factors, illiteracy and reluctance by households to embrace family planning methods. The implication of the study is that continued research on community health workers will bring the public health community one step closer to understanding the optimal approach to understanding and fulfilling the goals of community-based development.

5.5 Recommendations

The study makes the following recommendations to various stakeholders according to the objectives of the study.

1. First, to increase the rate of providing educational services, the study suggests that there is need for combined stakeholder support to provide CHWs with relevant material and knowledge support on how to address MHC challenges. CHWs require continuous and regular training to be provided to them by the county government. Providing training that would allow CHWs to have as much flexibility in their skills as they currently have in their schedules may increase the effectiveness of CHWs.

2. Secondly, there is need for the county government to provide more preventive materials and supplies to CHWs considering that the current supply was based on household survey conducted in 2009. The uptake rate of 50% of MHC services was as a result of increased population making it difficult for CHWs to reach all households.
3. Thirdly, there is need for introduction of mobile clinics to minimize risk associated with medical emergencies. Some women are forced to walk for long distances (during labour) to seek medical attention thereby increasing maternal health risks.
4. Fourthly, the study suggests that CHWs should petition local leaders to support their activities of creating awareness on the importance of maternal healthcare services in reduction of mortality rates in Tudor-Moroto.
5. It is possible that expanding the scope of the CHW role, such that it includes tasks such as taking blood pressure that are now associated with health professionals, may help legitimize the CHW role and increase community members utilization of CHW services.

5.6 Suggestions for Further Studies

1. The study suggests that future research should be conducted in a wide scale especially the whole of Mombasa County to determine the specific achievements and challenges that CHWs face during delivery of MHC services
2. Secondly, the study suggests that future research should look on the barriers to adoption and utilization of family planning methods by households.

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APPENDICES

APPENDIX A: LETTER OF TRANSMITTAL

Mwanaisha Hamisi
P.O. Box 2187, 80100
Mombasa, Kenya

Dear respondents,

I am a student at University of Nairobi Department of Extra Mural Studies undertaking Masters' Degree in Project Planning and Management. It is a requirement that a student writes a project in the field of study. For that purpose I request you to spare your time to fill this questionnaire that is intended to find out **Role of CHWs in enhancing maternal healthcare within Mombasa County, Mombasa County.** Kindly spare some time to fill the attached questionnaire to enable me complete this study for which I will be very grateful. You are kindly requested to fill in the blank spaces at the end of each question or statement or simply put a tick where appropriate. This information will be used purely for academic purposes and will be treated in strict confidence. You need not include your name. Any additional information that you might feel is necessary for this study is welcome. Your participation in this study will be valuable as it will contribute to the achievement of the study objectives. Please respond as honestly and truthfully as possible. Put a tick (✓) on the appropriate answer on the statements below.
Acceptance to be a respondent in this study

I _____ have agreed to participate in the study

Signature (Do not indicate your name)

Thanks in advance for your support.

Regards,

Mwanaisha Hamisi

UON Student

**APPENDIX B: QUESTIONNAIRE FOR MOTHERS OF TUDOR MOROTO
HOUSEHOLDS**

Instructions

Please answer the questions freely. The information you provide will be treated with utmost confidentiality and will only be used for academic research purposes by the researcher herself.

Section A: Demographic data

1. Which part of Mombasa County do you come from _____?

2. Your age bracket

Less than 20 yrs. [] 21 – 25 yrs. [] 26 – 30 years []
31 – 35 years [] 36 – 40 years [] 40 years and above []

3. Your marital status

Married [] Single [] Separated [] Divorced []
Widowed []

4. What is your literacy status?

Illiterate: unable to read and write []
Literate: able to read and write []

5. Do you listen to radio?

Yes [] No []

6. Do you participate in income generating activities?

Yes [] No []

7. If yes, which one _____

Section B: Utilisation of Maternal health services

8. Indicate the frequency to which you have utilised the following services during and after your pregnancy of the youngest child.

	Always	Rarely	Never
a. Using contraceptives for family planning before and after pregnancy			
b. Attendance of antenatal during pregnancy			
c. Attendance of health facility			

during delivery			
d. CHWs visit to my home 24 hours after delivery of my youngest child			
e. HIV testing			
f. Use of iodized salt			

Section C: Sources of Maternal Health Services

9. Where did you obtain current family planning method?

Health centre [] Dispensary [] CHWs []

Non-current users and pregnant mothers [] N/A []

10. Where did you receive antenatal care when you were pregnant for your youngest child?

Health centre [] Dispensary [] CHWs []

Did not go to any facility [] []

11. Where did you give birth for your youngest child?

Home [] Hospital [] Dispensary [] Health centre []

At Midwife place [] At CHWs place [] any other _____

12. After your youngest child was born, if a health worker checked your baby, where did that check take place?

Home [] Hospital [] Dispensary [] Health centre []

Section D: CHWs Roles in Provision of Maternal Health Services

13. On the following statements, indicate the extent to which you agree or disagree with them on the provision of maternal health services by CHWs in your area

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Educational services					
a. CHWs usually advice on warmth and promoting early and exclusive breastfeeding					
b. CHWs provided advice on new-born care-seeking including immunisation					
c. CHWs promote skilled birth attendance by disseminating key messages to support safe pregnancy & delivery of a healthy new					

born					
Preventive materials					
a. CHWs provide community based distribution of contraceptives (pills, condoms)					
b. In the past 12 months, CHWs had visited me and talked about family planning					
c. The CHWs advice on maternal emergencies					
d. The CHWs provide distribute preventive materials and supplies (ITNs, nutritious foods)					
Referrals					
a. CHWs Advice on seeking antenatal care					
b. CHWs provide advice on early referral for maternal emergencies					
c. CHWs link us with health personnel in dispensaries and health centres					
Social support					
a. CHWs advocate for community leadership support for safe pregnancy and delivery of a healthy new-born					
b. CHW(s) visited me immediately after delivery of my youngest child					
c. CHWs visited me during the pregnancy period of my youngest child					
d. CHWs advised on postnatal home self-care, nutrition, safe sex, breast care					

14. On your own comments, what can you say on the role of CHWs towards promoting maternal health in Tudor Moroto area? _____

15. What do you think should be done to improve CHWs roles in the delivery, advice and provision of maternal health services to women in Tudor Moroto area?

The end

Thank you for taking part in answering these questions

APPENDIX C: INTERVIEW QUESTIONS FOR CHWs

Instructions

Please answer the questions freely. The information you provide will be treated with utmost confidentiality and will only be used for academic research purposes by the researcher herself.

1. How long have you worked in Mombasa County?
2. What's your experience in provision of maternal health services?
3. What's your training level in provision of maternal health services?
4. What are the specific roles that you undertake in provision of maternal health services in this area? (Explain them in detail)
5. What's has been the impact (based on your experience and knowledge) of maternal health services that you provide in Mombasa County?
6. What have been the challenges that you've encountered in the provision of maternal health services?
7. How can the issues addressed above (question 6) be addressed?

Thank you for taking part and your time in this interview