

**CONTRIBUTION OF COMMUNITY HEALTH VOLUNTEERS IN
IMMUNIZATION UPTAKE IN POKOT SOUTH SUB- COUNTY, KENYA**

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Degree of Master of Science in Advanced Nursing Practice (Community Health
and Primary Health Care) of Masinde Muliro University of Science and
Technology**

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DECLARATION

DECLARATION

This thesis is my original work prepared with no other than the indicated sources and support and has not been presented elsewhere for a degree or any other award.

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CERTIFICATION

The undersigned certify that they have read and hereby recommended for acceptance of Masinde Muliro University of science and Technology a thesis entitled, **“Contribution of Community Health Volunteers in Immunization uptake in Pokot South Sub- County, Kenya.”**

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DEDICATION

This study is dedicated to my beloved wife Terry Chelekuta, my children Allan, Recline, Abigail and Neema, for their unflinching and moral support that have been instrumental to my success in this study.

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ABSTRACT

Community Health Volunteers are key in increasing immunizations uptake. In Kenya, KDHS 2014 report indicates basic vaccination coverage reduced from 77% in 2008 to 71% in 2014 and the proportion of children who are fully immunized in West Pokot is only 31%. Little is known about the contribution of CHVs in uptake of immunization services in Kenya and Pokot South, Sub-County is not an exception. This study, therefore, sought to determine the contribution of CHVs in the uptake of immunization services in Pokot South, Sub-County of West Pokot County. A cross-sectional research design using mixed methods of data collection was adopted targeting CHVs and the households served in the community units. The study employed multi-stage sampling method to select villages, community units and the households that were randomly sampled. The sample size calculation was based on Yamane's formula (1967) with resultant total of 184 CHVs and 356 caregivers who took part in the study. Data was collected using structured questionnaires for quantitative data and key informant interview schedules for qualitative data. Quantitative data was analyzed using SPSS Version 21.0. Chances proportions with 95% confidence interval were calculated to test the noteworthiness of affiliation between each independent and the dependent variable. P value ≤ 0.05 was considered statistically critical. Qualitative data was prepared by analyzing themes from key source interviews. The information from the two methods was triangulated into a single document. CHVs respondents comprised 67.4% males and 32.6% females. Mean age was 37.6 and ranged between 23 to 63 years. Majority (96.2%) were married with nearly two thirds (64.1%) having attained primary education. The results revealed that CHVs who were supervised by CHEWs were 4.5 times more likely to have performed better (OR: 4.5; 95%CI: 1.5 – 13.7; $p = 0.01$). Similarly, those who agreed that they had been supervised were four times more likely to have had better performance than those who were not (OR: 4.0; 95%CI: 1.3 – 12.0; $p = 0.02$). This study highlighted that training is an important factor affecting the CHVs' services. Households that were visited by CHVs were 1.7 times more likely to have had fully immunized children than those that were not (OR: 1.7; 95% CI: 1.1 – 2.8; $p = 0.03$). The same was true where caregivers stated that CHV discussed vaccine preventable diseases during household visits (OR: 1.6; 95%CI: 1.0 – 2.5; $p = 0.05$). In conclusion, CHVs play a major role in under-five immunization uptake. They act as link to households, communities and the health facilities and share health messages, trace defaulters, among other roles. The year when recruited and regular supervision by CHEWs are key factors that improve performance in the sub-county. Community has positive perception on contributions of CHVs in the study area as they are recognize and value the work they do. This study recommends further strengthening of partnership between health facilities and CHVs. There is need for the MOH to adherence to the recommended number of days for targeted and continuous training for CHVs and improvement in quality supervision and monitoring of CHVs by MOH and CHEWs. Based on perceptions on CHVs contribution on immunization, the Community Health Committees (CHC) there is need to look for ways on how to recognize and support CHV to motivate them.

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LIST OF ABBRIVATIONS AND ACRONYMS

CHEW	:	Community Health Extension Worker
CHS	:	Community Health Strategy
CHV	:	Community Health Volunteer
CHW	:	Community Health Worker
CU	:	Community Unit
FIC	:	Fully Immunized Child
KDHS	:	Kenya Demographic Health Survey
KEPH	:	Kenya Essential Package for Health
KII	:	Key Informant Interview
MOH	:	Ministry of Health
PHC	:	Primary Health Care
UNICEF	:	United Nations International Children's Emergency Fund
WHO	:	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents the background study and the problem statement. It further looks at the purpose of the study, objectives and research questions that needed to be answered in the study. The chapter further reflects on the significance, conceptual framework.

1.2 Background to the Study

Immunization is among the foremost cost-effective open wellbeing intercessions for lessening worldwide childhood morbidity and mortality. It could be a demonstrated instrument for governing and eradicating life-threatening irresistible illnesses and is anticipated to forestall between 2 to 3 million fatalities annually (WHO, 2015). It considered one of the foremost lucrative wellbeing mediations, with demonstrated procedures that make it easily accessible to indeed the foremost hard-to-reach and vulnerable populaces. In any case, immunization scope remains distant underneath the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) target of 90% in developing countries (WHO/UNICEF, 2015). Since 2010, the rate of children who received their full course of schedule immunizations has reduced universally to 86% which translates to 116.5 million newborn children. This falls short of the worldwide immunization scope target of 90%, between 2015 (WHO/UNICEF, 2015). Low immunization coverage leads to an increase in preventable deaths and increased disease burden. This negatively impacts health outcomes and socio-economic development in the countries (UNICEF, 2015).

There are many strategies that have been implemented to improve and intensify immunization services and coverage in the globe. This has been through equipping more health facilities with cold chain equipment, recruiting and training of community health volunteers, tackling outbreaks through campaigns and continuous monitoring and evaluation of immunization services (MOH, 2007).

Globally, given the limited human resource in the health sector, a community-based approach has been promoted as a cost-effective intervention to improve access of health care (Sarita, *et al.*, 2017). Community health volunteers are men and women chosen by the community and prepared to bargain with person and community wellbeing issues, working in near relationship with the formal health care framework. One qualifies to be selected when they have basic literacy and numeracy levels. CHVs are considered as a third health benefit conveyance work-force and have advanced with community-based healthcare programmes (Bagonza, *et al.*, 2014). Approaches that engage CHVs to disseminate information for increasing demand for immunizations identify those who need immunizations and refer the children to health facility receive the services. Community Health Volunteers (CHVs) are often employed as a key element of the community-based approach to the rural population of low- and middle-income countries (Liang, *et al.*, 2017).

The use of community health volunteers (CHVs) has been in existence for a long time. However, their demand increased after the introduction of community strategy. The roles of CHVs are to facilitate community's groups meetings, where villages gather and discuss health topics, refer children for immunization and health checks and also maintain a record of health activities and report this to local health facilities (MOH, 2006). The growing use of CHVs in the provision of health care for the rural

population means that understanding the CHVs' view is important (UNICEF, 2010). Despite a community-based approach instituted as a cost-effective intervention to improve the access to immunization. This approach of incorporating community health volunteers in the health care system was believed to improve and intensify immunization services thus improving coverage (Olayo *et al.*, 2014). Despite interventions, immunization coverage trend remains worrying in marginalized communities in Pokot south sub-county included.

1.3 Problem Statement

One of the major public health concerns that has been recognized is inadequate immunization which is accountable to close to 17% of global deaths among children aged under 5 years.

In Kenya, statistics indicate that in the last two decades, there has been a continuous decline in immunization coverage levels across regions and in Kenya worse trends have been documented to be high in marginalized areas (KDHS, 2008). KDHS 2014 report indicates basic vaccination coverage reduced from 77 percent in 2008 to 71 percent in 2014 and the proportion of children who are fully immunized in West Pokot is only 31%. The disparities in immunization coverage in Kenya reflect the country's inequities. Most of the children who have missed immunization are from poor and under-developed regions especially the arid and semi-arid lands. These vulnerable and marginalized populations contribute to the high number of under or un-vaccinated children in Kenya.

Report from District Health Information System² (DHIS2) indicates that west Pokot County has been lagging behind as its immunization coverage has been as follows; in the 2015 (69.7%), 2016 (58.1%) and 2017 (43%). In Pokot south, the coverage has been as follows; 2015 (70.5%), 2016 (58.1%) and 2017 (50.2%).

Although CHVs have been recruited in West Pokot to facilitate improvement in immunization coverage, their contribution in immunization uptake in Pokot South Sub-County is still not known and hence the need to undertake the study

1.4 Broad Objective

Contribution of community health volunteers in immunization uptake among children under 2 years in West Pokot, Poot South Sub-County, Kenya was the broad objective of this study.

1.4.1 Specific Objectives

1. To determine the roles of community health volunteers in immunization uptake in Pokot South sub-county.
2. To evaluate factors influencing performance of community health volunteers in immunization uptake in Pokot South sub-county.
3. To analyze perceptions of stakeholders on CHVs contribution in immunization uptake in Pokot South sub-county.

1.5 Research Question

1. What are the roles of community health volunteers in immunization uptake in Pokot South sub-county?
2. What factors influence performance of community health volunteers in immunization uptake in Pokot South sub-county?

3. How do stakeholders perceive CHVs contribution in immunization uptake in Pokot South sub-county?

1.6 Hypothesis

There doesn't exist any relationship between the use of community health volunteers and immunization uptake among children under two years in Pokot south sub-county

1.7 Significance of the Study

Pokot South Sub-County has been implementing immunization programme where CHVs have been involved to mobilize community members to use immunization services. Programme started in 2015 with an extension from 2017 with a view of further improving immunization coverage, among other related roles. It is timely to assess the contribution of the sub-county's CHVs and determine associated factors contributing to the improved performance of immunization services to come up with effective ways of implementing programs in the marginalized areas. In the study area there is no research which has been conducted to investigate the contribution of community health volunteers in immunization uptake in Pokot south sub county.

The findings are expected to inform relevant county policies to improve immunization coverage levels. It will also inform programming of projects in the community that will motivate CHVs and facilitate adoption of better strategies to improve access and utilization of immunization services and coverage.

1.8 Limitation of the study

This study has identified several shortcomings. The actual percentage of under-fives who had been fully immunized may be more since in some regions the cards were not available. Besides, information gotten from mothers or care providers on the immunization status of their children may not be solid where the cards were not

available. Hence recall bias could have been possible. The self-reports from CHVs on their roles could have been exaggerated. However, attempts were made to corroborate this information with reports from their supervisors. The study also did not address the availability of vaccines which could have affected CHVs performance. In addition, questions related to the type of terrain CHVs were covering were not asked to elicit challenges that they might have been facing that could lead to underperformance. Despite these limitations, the present study attempted to assess many factors that could identify the roles and their contribution to uptake of immunizations. This included interviewing CHVs, caregivers and the CHEWs that can inform policy and program actions.

1.9 Conceptual frameworks of the study

The study adopted from a study done in Burkino Faso (Timothy Roberson, 2015), a framework to guide analysis on the roles, factors determining CHVs performance in terms of improving immunization uptake. The determinants of performance in the framework include; CHV individual characteristics, health system factors and community factors. Previous studies have shown the importance of CHV socio-demographic characteristics (Kawakastu, *et al.*, 2012).

Other studies highlighted the role of health system i.e. training and supervision of the community health volunteers as a key in CHV performance (Maji, *et al.*, 2010) some studies suggested that community factors have a role in improving performance of CHVs (Jaskieiwes & Tulenko, 2012).

Conceptual framework of the study

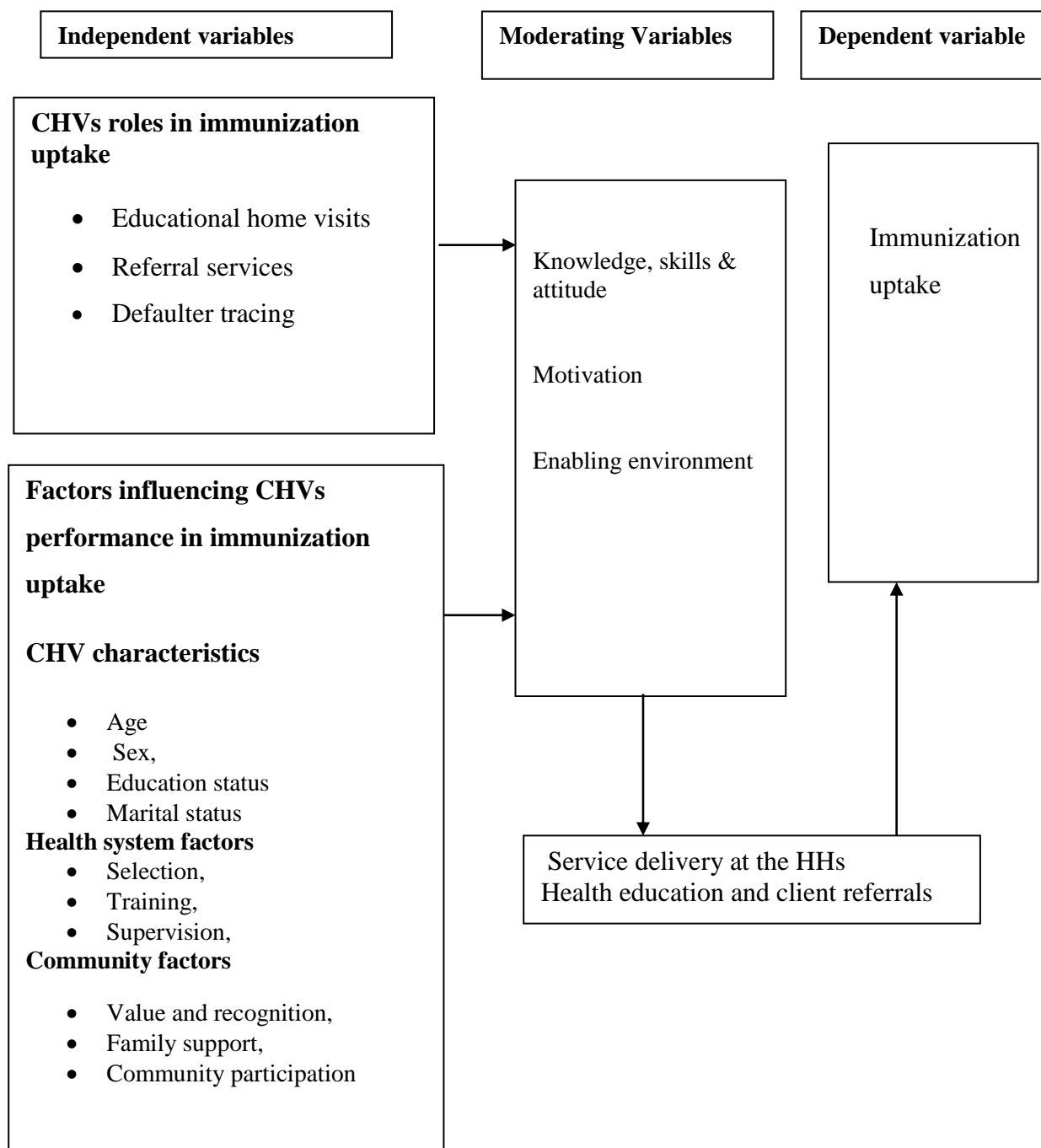


Figure: 1.1 Conceptual Framework of the study

Source: Researcher, 2018

1.10 Definition of Terms

Caregiver: a parent or guardian that was taking care of the child

Community health volunteer: These are community own resources persons that provide health administrations inside a formal structure on a deliberate premise.

Community Health Committee (CHC): the decision makers at the community unit level, they provide support to CHVs

Community unit functionality: a community unit that was reporting six months prior to the study

Fully immunized child: Any baby who has taken all basic immunization vaccines any time within the first year of life

Immunization uptake: proportion of children who have received all the primary antigens

Performance: based on actual performance of assigned roles (number households visited, health messages shared with households (vaccination and vaccine preventable diseases), referrals, defaulter tracing which were summed up and averaged

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter reviews the literature related to contribution of community health volunteers in immunization uptake. The chapter covers: general information on immunization, immunization uptake, human resources for health and immunization uptake, health systems in Kenya and the concept of community health strategy, contribution of community health volunteers in immunization uptake, community factors influencing the performance of CHVs in immunization utilization/uptake, perceptions of stakeholders on the role CHVs in increasing immunization uptake and research gap.

2.2 General information on Immunization

Kenya reports an overall basic vaccination of 77% of children aged between 12-23 months (KDHS, 2014). Concurring to WHO, a child is said to have gotten all the essential immunizations when the child gets: a BCG immunization against (TB) tuberculosis; 3 dosages of DPT vaccine to avoid diphtheria, Pertussis and Tetanus (or 3 doses of the antibody Pentavalent, which incorporates DPT and inoculations against both hepatitis B and Haemophilus Influenza type B); at slightest 3 doses of polio immunization; and one dose of measles vaccine including one dose of vitamin A. All received during the first year of life (WHO, 2012).

One of the major public health strategies which can be used to avoid childhood mortality and illness is immunization (WHO/UNICEF, 2012). If it was not for vaccination, over 5 million deaths in children would be experienced annually which could have been otherwise been avoided (Arooj, Baber, Abbasi, Ali (2013).

2.3 Immunization uptake

Immunization is the securest and efficient way for averting and exterminating a variety of communicable infections in the globe (WHO, 2018). It has been demonstrated tool for controlling and eliminating life-threatening irresistible diseases and is assessed to deflect between 2 and 3 million deaths each year. But a glaring gap exists between developing and industrialized nations towards immunization, developing nations are still endeavoring to provide essential immunization to their children (WHO/UNICEF, 2014). In accordance to the World Health Organization guidelines, a child is fully vaccinated with all essential vaccinations if the child has gotten all the primary vaccines within one year of life. Worldwide, comprehensive immunization reportage for children aged 12–23 months reached 83% in the year 2011 (WHO, 2015). WHO reported that immunization coverage has been 96% in Western Pacific region, 96 % in the European Region and 90% in the Americas Region, the coverage was reported to low in Eastern Mediterranean Region at 82%; in the South-East Asia Region at 77%; and in the African Region at 75% (ibid).

One of the important contributing factors to the decline of the mortality rate in children under the age of five during the past 25 years has been expansion of immunization coverage and maintenance of coverage is essential for mortality prevention in future. The effectiveness in expanding immunization coverage and particularly in achieving importance, hard to reach areas and marginalized populations is paramount. The most effective means of promoting immunization uptake is through engaging CHVs (WHO, 2006).

In Kenya, full immunization coverage for children aged 12–23 months stood at 75% in the year 2011 there has been a continuous decline in immunization coverage levels across regions in Kenya with worse trends documented in marginalized areas (KDHS, 2014). According to the 2014 KDHS, basic vaccination coverage reduced from 77% in 2008 to 71% in 2014.

Distribution of FIC show that counties in the North of Kenya have had immunization coverage of below 60% in 2014, thus approximately 250, 000 children in these areas alone are not fully immunized (KDHS, 2014). Low immunization coverage will lead to an increase in preventable deaths and increased disease burden. This will negatively impact health outcomes and socio-economic development in the country.

2.3 Human resources for health and immunization uptake

Globally, human resource for the medical crisis are one of the determinants that underpin the deficient performing health systems in delivering effective, evidence-based involvements for importance health issues, including immunization, and this crunch is more crucial in developing nations. Community based approach has been considered and championed as the efficient intervention cost wise in improving health care access for human resources in the health care sector (Sarita, *et al.*, 2017). This concept was introduced in Alma Ata conference in 1978 where essential health care was defined, deliberate health specialists were distinguished as the third workforce inside the ‘Human resources for Health. The utilization of community wellbeing volunteers has been recognized as one of the techniques to address the developing deficiency of health specialists, especially in developing nations (Sanders, 2007). Their recruitment and involvement were demonstrated in where health services are not easily accessible, and a number of Asian and African states

are presently capitalizing in this third labor force as a key element of their schemes to achieve the sustainable development Goals.

Community Health Volunteers (CHVs) provide such a vital and important connection to health systems and are a formidable force for fostering healthy lifestyles in resource-intensive environments (UICEF, 2010). Over the last decade, we have experienced various explosions of indications and interest regarding community health volunteers and their possibility to improve the health of inhabitants where the resources of health workers are limited (Ibid).

2.4 Health systems in Kenya and the concept of community health strategy

In the low-income countries, WHO report in 2016 established that shortage of professional health practitioners was one of the causes of increasing crisis for provision of health services. (WHO, 2006). In mitigation the Alma-Ata declaration of 1978 promoted broader utilization of Community Health personnel to offer a selection of intrusions and foster health behaviors among communities. In Kenya, CHVs workforce was adopted into the National Health Sector Strategic Plan Two (NHSSP II), 2010-12 as a component of fetched successful procedures in attending to the wellbeing care needs of underserved communities (MOH, 2007).

Community Health Strategy (CHS) is a new Community Health Volunteer directed by Primary Health Care (PHC) in Kenya. The CHS aims to promote the health status of Kenyan citizens by increasing the CHV's capacity to provide Primary Health Care (PHC) services, improving the social linkages with health facilities and strengthening the population to slowly recognize their rights to quality healthcare and to demand transparency from health facility-based services (MOH, 2006). The CHS policy framework calls for the development of Community Units (CUs) as the foundation

for the delivery of PHC programs. Estimated 5000 people are expected to represent per CU. The service providers in the CU are well-trained Community Health Extension Workers (CHEWs) and Community Health Volunteers (CHVs). CHVs are community members chosen by the group and qualified to represent the same neighborhoods they come from while CHEWs are licensed health professionals. That CHV is required to deliver PHC services to 50 households. The roles of CHEWs are: to monitor and control CHVs (each CHEW is expected to supervise up to 25 CHVs), to promote learning in the community and to provide a connection between CHVs and health facilities (MOH, 2007).

Concurring to Kenya's Essential Health Package (KEPH), populaces are the basis of available, impartial and viable health care and are at the heart of the second National Health Division Strategic Plan 2010-2015 (NHSSP III). This strategy paper sets out the position to be taken to guarantee that Kenyan communities have the capacity and inspiration to play their key part within the conveyance of health care (MOH, 2007). This is done through the creation of affordable neighborhood-level services offered by community health volunteers. Community Health Volunteers offer tier one support where it applies to the whole community-based portion of the Kenya Essential Health Program (Odondi, 2010).

Community health volunteers (CHVs) are frequently employed as a key component of the community-based approach to the rustic populace of low- and middle-income nations (Hum Resource Health. 2012). Although CHVs have been supporting health programmes for a long time, their demand increased following the implementation of the Community Strategy. Lately, this activity has been reinvigorated in some developing countries due to the increased double burden of poverty-related illnesses

and ill-health linked with lifestyle change, and has been described as one of the solutions to tackle the problem of lack of trained health professionals (UNICEF, 2015). Mirkuzie, *et al.*, 2018) performed several primary findings and systematic reviews focused on the involvement of community health volunteers (CHVs) in the provision of essential health services. It was discovered that CHVs have the capability of supplementing the formal health system in the struggle so as to achieve UHC among the developing states. CHVs demonstrated positive results in encouraging immunization adherence and enhancing outcomes of acute respiratory infections (Gilmore and McAuliffe, 2013).

2.5 The contribution of community health volunteers in immunization uptake

Community Health Volunteers are community members who are chosen to serve in their communities. They were hired from the neighborhood from feedback from Community Health Extension Workers (CHEWs) and city, sub-location, or sub-county leaders. They are often hired by baraza (meeting with family elders) (MOH, 2006). Preferably, Community Health Extension Workers ought to be literate, capable of reading and writing and valued, this helps them in motivating others in the communities and societies. They undergo a 6-week original course before commencement of their community job and refresher training quarterly training (MOH, 2006). CHVs are controlled by CHEW, a facility-based and government-based agency. Every community unit, consisting of roughly 5000 persons, is supported by 50 CHVs and 2 CHEWs. About 25 CHVs are controlled by each CHEW (MOH, 2006). CHEWs assist CHV by guidance and training and preferably visit their CHVs monthly (Oliver & Geneits, 2015).

Community health volunteers offer a crucial and vital link with health care systems and are a formidable force to promote healthy habits in resource limitation settings. Given the massive shortage of health workers in sub Saharan Africa with unjust distribution of the workers within the states, CHVs potential for improving the health potential of populations and accelerate the progress of achieving universal health coverage (Zullinger, 2012). The major role of CHVs is to promote community group meetings where villages congregate and talk about health issues. CHVs refer to children for immunization and health checks. They must maintain a database of medical events and communicate to local health services. Increasing use of CHVs in the delivery of health care to the rural population implies that recognizing the opinions of CHVs is critical (GilMore, *et al.*, 2013).

This is because the design of CHV programs and policies involves the sharing of information which incorporates the views of people involved in the health care system. Nevertheless, little is understood about the opinions and happenings of CHVs and how they are perceived and encountered by service users and local health professionals (Glenton, *et al.*, 2010). The available evidence on the efficacy of methods used at the sub-national level to improve immunization coverage is the interventions which support CHVs in disseminating information on increasing claims for immunizations, getting immunizations nearer to the population, and finding those who need immunizations are the most effective strategies to expand coverage.

Currently, the Global Polio Eradication Initiative has depend on CHVs to participate in social mobilization exertions in the hardest-to-reach zones of states where polio virus has been circulating (UNICEF, 2013). Such CHVs have also encouraged the use of routine immunization programs as well as involvement in specific polio

immunization initiatives. These methods include training CHVs to carry out home-to-home visits and advise individuals around of polio immunization by visiting, engaging and mobilizing families and care providers, as well as assembly nearby leaders to overcome resistance (UNICEF, 2015). Current published evidence proposes that CHVs makes it conceivable to extend scope within the difficult target regions of polio eradication and that social contact at family level could be a imperative driver to the expansion of scope.

Community Health Strategy (CHS) which is a CHV led Primary Health Care intercession which was premeditated in 2006 to sustenance the delivery of Kenya Essential Package for Health at the community level (MOH, 2006). In west Pokot County, Pokot south sub county, the intercession was introduced by the county government of west Pokot in partnership with the world vision Kenya 2015 as a component of timing spacing and immunization project (TSI). The project ended February 2018 and was extended for another two years. However previous studies have shown that CHVs play an significant part in cumulative access to health care services, the result of the Community strategy on immunization coverage in west Pokot County, Pokot south sub-county remains unknown.

2.6 Community factors influencing the performance of CHVs in immunization uptake

The actions of professionals concerning health care were heavily influenced by the experience of others in the society (Stephenson, *et al.*, 2007). There are several variables that may affect efficiency, including demographic dynamics, situational factors and living circumstances, which could impact the quality of a CHV by a group (WHO, 2006). The role of social influences in the provision and use of

immunization programs has been mainly ignored (Cheboi, 2011). Incorporating the role of the population in CHV's performance analysis will provide an opportunity to highlight health risks associated with particular social systems and neighborhood ecologies, which can then clarify why community development, perceptions, expectations, and provision of health services have an effect on health-seeking behavior (Stephenson *et al.*, 2007). Cultural and leadership views are especially important in the need for immunization and other health services, particularly at the grassroots level. One of the reasons are good interaction, which is a complex process which, at some point in time, has a classification that may be suitable for specific population classes. The state of health interaction for a given population relies on several thirds of the system and method. It covers government policy, health care guidelines, the framework and system of health care and the diverse social realities of a multicultural society (Yoshito, *et al.*, 2012). The issue of individual security and safety may be a prerequisite for start and for the continuation of the conveyance of health care, hence there's an ought to survey its role within the performance of CHVs (Liang, *et al.*, 2017). It is widely acknowledged and stressed that the effectiveness of the CHV services relies on constant and effective funding, storage, supply of drugs, supplies and supervision. The use of traditional medicines and conventional physicians is not included in information on the provision of health care in Kenya (Turin, 2010).

Medication, sickness and health service provider attitudes can interfere with the provision of health care (Langelilile, *et al.*, 2015). The propensity of clinicians to doubt and challenge advice presented by medical experts may also lead to the quality of CHVs. Cultural background serves as an imperative factor in the conveyance of

health services, particularly in African states. Many socio-cultural factors hinder the quality of CHVs. The social outlook on the quality of CHVs shows that medical needs are dictated not only by the nature of physical illness, but also by the cultural discernment of sickness (Mishra A, 2014). Across cultures where people are not allowed to interact openly, across general with males, 25 CHV results by opposite sex may be impeded. Several experiments have looked directly into beliefs and attitudes (Glenton, 2010). Job satisfaction, affected by organizational variables such as managerial ability and preferences, working conditions, financial considerations, professional advancement and security at work, is a core determining factor of health service provision in particular (WHO, 2006). There are few reports on the effect of happiness on the quality of CHVs (Kawakatsu, *et al.*, 2017). CHVs do not exist in space, they are part of, and they are affected by, the broader cultural and political climate in which they work.

2.7 Perceptions of stakeholders on the role CHVs in increasing immunization uptake

Community health volunteers are potential enablers for communities to access health services including immunization, they act role models and as catalysts by engaging individuals of their communities with expanded information and bolster as a result effectively energize linkage and take-up of administrations (Zulinger, *et al.*, 2014). CHVs operate in a complex and unique environment in which interpersonal relationship plays a key role; the social environment tasks the progress of trusting associations that are indispensable for the uptake of health services to include immunization (Kok Mc *et al.*, 2015). Age and gender of the CHVs impact the way communities trust and build relationships with CHVs.

Mlotshwa, *et al.*, 2015 stated that the age and gender of CHVs impacted how communities professed them on how they perform their duties (Mlotshwa, *et al.*, 2015). Much of the victory of any health mediation depends on positive and trusting connections at CHV person and systemic levels. Fruitful take-up of administrations is to a great extent decided by the relationship between the client and the community health volunteers (Mishra, 2014).

At the systemic level, the effectiveness of CHV programs relies on a strong level of community engagement and commitment and a positive relationship between the CHW initiative and the traditional health system (Haines, 2007).

2.8 Summary of literature reviewed related to studies

Although Community Health Strategy was implemented in 2006 in Kenya, few studies have assessed their contributions, particularly in hard-to-reach areas such as West Pokot County. If uptake of immunization is one of the major indicators of the success of interventions that target under-five year old children, then studies on the contributions of CHVs, who are assigned the role of linking the communities and the health facilities with regard to child immunization, is crucial. However, the literature and evidence on the CHVs contribution on uptake of immunization in hard-to-reach areas which experiences below average national uptake of immunization is highly limited, with major evidence gaps. We found no evidence of studies conducted in hard-to-reach areas among pastoralist communities such as those in West Pokot on contributions of CHVs on uptake of immunization. We postulate that identification of the roles of the CHVs and factors that influence their performance (individual characteristics, health system and community factors) may play a major role in the uptake of immunization in Pokot South Sub-County which is a hard-to-reach area.

These factors, however, are moderated by CHVs knowledge, motivation and enabling environment.

CHAPTER THREE

METHODOLOGY

3.1 Overview

Methodology chapter addresses aspects of how this study was conducted. This included the research design, study area, target population, sample size, sampling method. The thesis also presents research instrument, piloting of the study tool, validity of the instrument, data collection procedures, data analysis technique and ethical consideration.

3.2 Study Design

This study used cross-sectional research design as it provided a good picture of immunization services of the population of children under the age of 2 at a certain point in time. It used mixed approach, both qualitative and quantitative methods with the aim of a rapid situational assessment on the contribution of community health volunteers.

3.3 Study Area

The location of the study was Pokot south sub county of west Pokot County, Kenya. The sub county was chosen because of its performance in immunization uptake. It had four county assembly wards out of which two had pastoralism life and nomadism while the two-practice mixed farming. The sub county is part of a county which practice pastoralism as means of economy and was marginalized in terms of access of health care services. The common status of the road network within the county is destitute. The tarmacked road is ineffectively maintained whereas the soil and graveled roads ended up obstructed amid the rainy seasons. A tough and sloping

terrain within the county poses challenges in access to households by CHVs. The respondents were chosen to represent the wards where the community health units were functional.

3.4 Target Population

The research study targeted the residents of Pokot south sub County in west Pokot County. The respondents who were selected to participate in the study were Community Health Volunteers (CHVs) because they were the key persons to realize better childhood immunization at household level. They were supposed to visit all households living in their community no less than once per month. The Caregivers of the children were the most common users of immunization services, and the Ministry of Health officials (CHEWs) who were the key informants (KIIs) because they provide support and supervision to CHVs and immunization services and they act as the coordinators for community strategy program.

3.5 Inclusion and Exclusion Criteria

3.5.1 Inclusion Criteria

Mothers or caregivers with children aged two years who lived within Pokot south Sub-County area and who consented to participate in the study, CHVs who have been working in the area for more than nine months and CHEWs who have been supervising CHVs in active community units.

3.5.2 Exclusion Criteria

Mothers or caregivers who had children more than two years not residence of Pokot south sub county and those who refuse to give informed consent, CHVs in dormant community units and CHEWs who are working within inactive Community units.

3.6 Sampling Technique

The study employed multi-stage and simple random sampling method where the sub-county that was implementing immunization programme where CHVs have been involved to mobilize community members to use immunization services was selected purposively. A multistage sampling technique was adopted to select the wards in the sub-county and the units served by the CHVs. At the ward level, CHVs were purposively identified and households that took part in the interview identified using simple random sampling by use of the register of households as the sampling frame. CHEWs who were interviewed as KII participants were also purposively identified. We attempted to select the units within each ward which were not immediate neighbours. Total numbers of community health volunteers in the 13 functional units in the sub-county were 344. According to KNBS population estimates 2018, the total numbers of mothers with children under two years were ten thousand seven hundred and eighty-eight (10788). The sample size calculation was based on Yamane's formula (1967). Caregivers were identified through list maintained by CHVs. Only caregivers belonging to households that the sampled CHVs served were interviewed.

$$n = N (1 + N (e)^2)$$

$$n = 344 / ([1 + 344] * 0.05^2)$$

Where N = Target Population,

n = sample size

e = error margin (5%)

$$n = 185$$

3.7 Data Collection Procedure

Quantitative data collection tool was adopted from Sergipe, Brazil (Juraci, & Cesar, 2005) and modified and adopted while qualitative data was collected through KII schedule. Face-to-face interview was used to collect data from CHVs and caregivers. Interviews were conducted by five trained research assistants. List with names of CHVs and corresponding households in CHV registers was used to identify the caregivers who were interviewed. The questionnaire consisted of: CHVs socio-demographic characteristics; roles of CHVs; factors influencing CHV performance; CHV's perceived support from stakeholders. For the caregivers the instrument included caregiver characteristics, child characteristics (12 – 24 months of age); vaccination history and roles of CHVs reported by caregivers. For qualitative interview guide, the open-ended questions addressed CHV recruitment criteria, immunization challenges, supervision, and immunization uptake, the opinion of CHEWs on what can be done to improve CHVs activities related to child immunization.

Role performance was based on actual performance of assigned roles (number households visited, health messages shared with households (vaccination and vaccine preventable diseases), referrals, defaulter tracing – were summed up and averaged. Role performance was broken down into 2 levels, these were the high performance and low performance by the use of mean as the cut-off point. CHV whose role performance score was above the median (>3.89) was categorized as high performance and vice versa.

3.8 Data management

Regular verification and validation of data was done with all the questionnaires. They were checked and resolved with the researcher and research assistants before data entry was done.

3.9 Data Validity and Reliability

In this study reliability of both quantitative and qualitative research instruments was ensured through pre-testing of the research instruments after which review of the tools was done guided by the pre-test findings. For qualitative data the themes were identified with lots of attention paid to contradictions on roles mentioned by caregivers, CHVs and CHEWs athwart various interviewees. The coding frame agreed by researcher and supervisors was systematically used to assign data to the thematic categories. The coding of the database was undertaken by the researcher. Two research members undertook interpretation to guarantee objectivity and consistency of coded data. Information from distinctive participant bunches were analyzed independently and after that compared for ranges of convergence and divergence. Interview information from diverse sources (CHEWs, caregivers and CHVs) on a single occasion were triangulated to extend the inner legitimacy of this study. Analyzing different cases fortified outside legitimacy. The following subjects were pre-established: roles, motivators and demotivators and perception of stakeholders on CHVs.

3.10 Pilot Test

The instruments were pre-tested 10 days prior to the date of data collection to determine their validity and reliability. The piloting was administered to the respondents with similar characteristics from Pokot Central sub-County who were

not being included in the actual study. The response obtained was used to check the accuracy of the instruments and its reliability to collect the required data.

3.11 Data analysis

Quantitative data was analyzed utilizing SPSS Version 21.0. Descriptive statistics like mean, median, standard deviation and range were utilized to portray the socio-demographic features of the study participants. Bivariate analysis taken after by different logistic regression models were at that point applied to evaluate the presence of an affiliation between independent variables and the dependent variables (CHVs execution. Odds proportion with 95% certainty interval were calculated to test the quality of affiliation between each independent and the dependent variable. P value less than 0.05 was considered statistically critical. Qualitative data were handled by analyzing themes from key source interviews. The information from the two methods were triangulated to facilitate validation of data through cross verification from quantitative and qualitative two sources data.

3.12 Ethical Consideration

For purposes of this research, IERC from MMUST authorized the study. A research authorization from NACOSTI, then Ministry of education and the county commissioner west Pokot County. The following ethical principles of research applied:

Beneficence was ensured by explaining to participants that the study was low risk and was free from physical, psychological and social harm. Questions were framed in non-judgmental way. Respect of human dignity was achieved by treating participants as independent agents. They were allowed to ask questions in any stage of the interview. All participants had the right to just, unbiased treatment and privacy

as a way of honouring principle of justice. The researcher also administered informed consent and asked participants to voluntarily take part in the research without coercion. Confidentiality was maintained throughout all the phases of research processes. This was achieved by keeping the raw data on a lockable cabinet and soft copies- password.

CHAPTER FOUR

RESULTS

4.1 Overview

This chapter exclusively devoted to the presentation and analysis of data collected through questionnaires and key interviews. A total of 184 CHVs were interviewed, CHVs were the individuals who are believed to create demand for immunization services. 356 caregivers provided data to validate what community health volunteers had said and 7 supervisors (CHEWs) from seven functional community units were interviewed.

The following were the specific objectives which guided analysis; to determine the roles of community health volunteers in immunization uptake in Pokot South sub-county, to evaluate factors influencing performance of community health volunteers in immunization uptake in Pokot South Sub-County, to describe the perceptions of stakeholders on the role of CHVs in increasing immunization uptake in Pokot South sub-county.

4.2 Socio- demographic characteristics of CHVs

Table 4.1 shows socio-demographic characteristics of community health volunteers. Most of the respondents were males (67.4%; 124/184) compared to the female counterparts (32.6%; 60/184). About half (48.4%) were aged between 35 – 44 years followed by those aged 25 – 34 years (32.4%). The average age was 37.6 with a SD of 7.2 and ranged between 23 to 63 years. Majority (96.2%) were married with nearly two thirds (64.1%) having attained primary education. Almost, nine out of ten

(89.1%) relied on CHV as an occupation. This explains the stipend that was given to CHV by government when the community strategy was first introduced in the area.

Table 4.1: CHVs Socio-demographic characteristics (n=184)

Variable	Responses	N	%
Gender of respondent	Male	124	67.4
	Female	60	32.6
Age group of respondents (years)	15 – 24	2	1.1
	25 – 34	63	34.2
	35 – 44	89	48.4
	≥55	30	16.30
Mean age ± SD (Range)		37.6 ± 7.2 (23.0 – 63.0)	
Marital status of respondent	Married	177	96.2
	Single	5	2.7
	Widow	2	1.1
Level of education	Primary	118	64.1
	Secondary	66	35.9
Occupation	CHV	164	89.1
	Agriculture	12	6.5
	Teacher	3	1.6
	Other	5	2.7

4.3 Socio-demographic characteristics of caregivers

Table 4.1 shows the socio-demographic characteristics of caregivers interviewed in all the sub-county. A total of 356 caregivers were interviewed and their data were available for analysis. Almost 90% of the respondents were spouses to the head of household. Majority of the respondents were female (88.2%; 314/356) with more than half (54.7%) of those interviewed aged between 25-34 years. Females in pastoral communities take care of young one while males are moving around with the animals; this explains why females were the majority. The mean age was 32.2 years (SD = 6.7) and ranged from 19 to 65 years. Majority (90.7%) were married. Two-thirds (67.7%) had attained primary education while slightly more than a quarter (26.1%) had secondary education. More than half 55.1% were of protestant

faith compared to 43.8% who were Catholics). Respondents were also asked about their occupation. While 17.7% were housewives, 18.5% were unemployed giving a total 36.2% (separate the results) who were either unemployed or housewives. About a third (32.3%) practiced farming. Pastoralism as an occupation was probably underplayed (8.1%) by the respondents because of the belief that it is men who move around with the animals. Those with stable employment (employed or had business) accounted for 16.3% of the respondents.

Table 4.2: Caregivers' socio-demographic characteristics (n = 356)

Variable	Responses	N	%
Respondent's characteristics			
Relationship to head of household	Head	29	8.1
	Spouse	320	89.9
	Relative	7	2.0
Gender of respondent	Male	42	11.8
	Female	314	88.2
Age group of respondents (years)	15 – 24	34	9.6
	25 – 34	194	54.5
	35 – 44	113	31.7
	≥55	15	4.2
Mean age ± SD (Range)		32.3 ± 6.7 (19.0 – 65.0)	
Marital status of respondent	Married	323	90.7
	Single	28	7.9
	Widow	5	1.4
Level of education	Primary	241	67.7
	Secondary	93	26.1
	College/University	22	6.2
Religion	Catholic	156	43.8
	Protestant	196	55.1
	Muslim	4	1.1
Occupation	Unemployed	66	18.5
	Housewife	63	17.7
	Pastoralist	29	8.1
	Farmer	115	32.3
	Employed	36	10.1
	Business/Self-employed	22	6.2
	Casual	25	7.0

4.4 Contribution of community health volunteers in immunization uptake

Table 4.3 presents the contribution of the community health volunteers. As part of background information, CHVs were asked when they were recruited as CHVs and nearly all (96.2%) were recruited between 2008 and 2015 compared to those recruited in 2015 who posted minimal proportion of CHVs (3.8%). Community strategy was rolled out in the country in 2008 while free maternal services were introduced in 2013. Mass recruitment of CHVs in West Pokot was done between 2013 and 2015.

Table 4.3: Contributions of CHV in immunization uptake (n=184)

Report by CHVs	Categories	n	%
Year started working as CHV	2008 – 2015	177	96.2
	≥2016	7	3.8
Recruited by	Community	176	95.7
	MoH	6	3.3
	NGO	2	1.1
Number of households assigned	10 – 19	4	2.2
	20 – 29	68	37.0
	30 – 39	60	32.6
	≥40	52	28.3
Mean age ± SD (Range)		32±10 (10 – 50)	
Key roles	Sharing health messages	46	25.3
	Defaulter tracing	18	9.9
	Referral of children	32	17.6
	Home visiting	86	47.2
Number of households visited last month	None	15	8.2
	<10	90	49.2
	≥10	78	42.6
Actions taken when visiting households	Advice on immunization	11	6.0
	Breastfeeding	12	6.5
	Defaulter tracing	26	14.1
	Hospital delivery	15	8.1
	Hygiene and sanitation	86	46.7
	Referral	34	18.5
Number of clients referred last month for immunization services	None	63	34.4
	Only one	17	9.3
	2 -5	79	43.2
	6 and above	24	13.1
Action taken when referring severely sick children	Write a referral note	159	86.9
	Help arrange transport	14	7.6
	Other (specify)	10	5.5

Majority (95.7%) were recruited by the community which is in line with government policy on the recruitment of community health volunteers.

“Each CHV was nominated by village leaders and elected by vote in a public meeting... for one to be voted as CHV He/she needed to be literate, to be known and respected by other village members, to have a sense of service, and to love their community... And people who stay amongst the community members all the time and are available when needed”. (KII, 2).

While initially, CHVs were supposed to be in-charge of 50 households, the current results show that more than two-thirds (69.6%) were responsible for between 20 – 39 households with an average of 32 households per CHV and ranging between 10 - 50. The general status of the road network in the county is poor. The tarmacked road is poorly maintained while the earth and graveled roads become impassable during the rainy seasons. A rugged and hilly terrain within the county poses another challenge in access to households by CHVs. This anecdote from the supervisor CHEWS concerning CHVs recruitment:

Regarding their roles, about half (47.2%) conduct home visiting which is non-specific. More specifically, 25.3% share health messages while 17.6% refer children to the health facility for immunization services. In the last one month prior to the study, 49.2% had visited less than 10 households in contrast to 42.6% who had visited at least 10 households. The expectation is that a CHV should have visited each household in his/her catchment area in one month. This was further explained by one of the CHEWs as follows:

“Community health volunteer’s role is to visit households and share health messages on monthly basis. Home visit must be made at least once a month for each household.... though with this kind of set up it may not be possible at times to do all the home visits because of the workload for our CHVs which is sometimes is high. In most of the times they don’t have fare to take a motorbike because they are not

paid any salary for the services they offer. Therefore, they can visit a number that they are able to reach and we are not pushing them harder because we do understand how difficult it is to move in this kind of terrain". (KII, 2)

On exploring the actions taken when CHVs visit households, most of them (46.7%) shared information on hygiene and sanitation. This was followed by 18.5% and 14.1% who referred children and conducted defaulter tracing, respectively.

This is supported by one of the supervisors who had this to say:

"CHVs usually go to the health facility to check on the immunization register every month and those children who have defaulted are noted on volunteer's notebook then they follow them up to their respective homes. When found, they are encouraged and brought back to the program to reduce dropout rates". (KII, 2)

Community health volunteers are thought to be one of the important strategies to bring children who may have defaulted from immunization program back by generating a list of the defaulters, then follow up to the villages and bring them to the program again. Another CHEW explained:

"Community Health Volunteers usually conduct defaulter tracing of children who have dropped from the immunization program. They usually work in collaboration with officers at their designated health facility and check immunization register.....Child Welfare Clinic register and identify children who have not come for the next vaccination date..... they list the names of those who didn't come for the return date for immunization..... then follow them in the villages and refer them back to the facility.... to continue with immunization schedule". (KII, 5)

A surprise finding is the smaller proportion of CHVs who share information on immunization (6%). CHVs are serving various organizations including government assignments. During their training they cover upto 12 modules which makes effective implementation of most of the modules, vaccination included, a big challenge and hence poor results related to the question on type of information shared. A follow up question on the number of referred children revealed that 43.2%

of the CHVs had referred between 2 to 5 in the last month prior to the study. The following was an explanation from one of the CHEWs:

“Community health volunteers talk to mothers at household level on the importance of immunization of the child and why it is important to complete immunization schedule and the consequences of not completing the process. However, they are trained on a lot of other areas making it difficult for them to focus on immunization, alone”. (KII, 6).

4.5 Caregivers’ reported contributions of community health volunteers in immunization uptake

Table 4.4 shows caregivers’ reported contributions of the community health volunteers. Caregivers’ were asked whether they were familiar with CHVs assigned to manage or attend to their households, Majority totaling to 92.1% affirmed to know their CHVs compared to 7.9% who were not familiar with their CHVs. More than three quarters (80.2%) have been visited by CHVs on other days other than during vaccination campaign 17.7% who have not been visited. Further inquiries on the visits by CHVs, (73.8%; 242/356) reported visited in contrast with 26.2 who were not visited in the past one month prior to the study.

When asked, what they discuss during home visits with their CHVs. More than a third (43.1%) discusses vaccine preventable diseases compared to 12.2% who discuss other health topics which were not related to immunization.

Most of the respondents (84.9%) had knowledge about immunization compared to 15.1% who were not aware. Regarding source of information concerning immunization (35.7%; 127/356) cite CHVs as their source. A quarter (35.4%) gets their information from radio and 16.6% get from their neighbors. A follow up question on whether they had a sick child in last one year, about 48.8% had sick child. For those whose children were sick, more than a third (38.4%) was referred to

health facility for treatment by the CHV. Regarding caregiver satisfaction with CHV services, more than half (57.3%) were satisfied with CHV services, while (42.7%; 152/356) were dissatisfied.

Table 4.4: Caregivers' reported contributions of community health volunteers in immunization uptake

Report by caregiver	Categories	n	%
Familiarity with the CHV	Yes	328	92.1
	No	28	7.9
CHV recruitment	Yes	263	80.2
	No	58	17.7
	Don't know	7	2.1
Number of times visited by CHV in the past one month	None	86	26.2
	Once	116	35.4
	Twice	77	23.5
	More than two times	49	14.9
What CHV discussed about child immunization with caregiver	Vaccine preventable diseases	150	44.6
	Cannot remember	145	43.1
	Other (specify)	41	12.2
Caregiver Knowledge on Immunization	Yes	297	84.9
	No	53	15.1
Source of information	Radio	126	35.4
	TV	8	2.2
	Neighbour	59	16.6
	CHV	127	35.7
	Health workers	23	6.5
	Community leader	13	3.6
	Other (specify)	41	12.2
Child was sick in last one year	Yes	164	48.8
	No	172	51.2
CHV referred sick child last year	Yes	63	38.4
	No	101	61.6

4.6 Perceptions of stakeholders on the contributions of CHVs in increasing immunization uptake

Table 4.5 shows the stakeholders perception on the contribution of CHVs in increasing immunization uptake. Nearly all of the respondents (92.1%) know their CHV. This has been verified by one of the respondents who said:

“Seventy five percent (75%) of the population in this community know their CHVs.....They cherish them for the work that they offer to the community members.....community usually refer them as the village doctors therefore this is an indication that they are trusted by the community”. (KII, 3).

More than half (57.3%) were satisfied with the work done by the community health volunteers in contrast with (42.7%; 152/356) who were dissatisfied. The level of satisfaction is high at 57.30%. One of the CHEWs had this to explain:

“Community members do value CHVs very much especially when there is a problem and CHV’s referring them immediately..... Community members trust someone who share information about health matters that will improve the community’s wellbeing”. (KII 1)

Table 4.5 Perceptions of stakeholders (caregivers) on CHVs contribution in immunization uptake

Report by caregiver	Categories	n	%
Knowns CHV assigned to work in the household	Yes	328	92.1
	No	28	7.9
Caregiver satisfied with CHV services	Yes	204	57.3
	No	152	42.7
Rating of satisfaction with CHV services	High (≥ 6)	204	57.30
	Low (< 6)	152	42.70
Caregiver’s perceived biggest challenges faced by CHVs	Lack of transport	79	23.7
	Poor remuneration	44	13.2
	Lack of motivation	75	22.5
	Lack of community support	104	31.2
	Lack of supervision	31	9.3

The caregiver reported perceived challenges faced by the CHVs in line of their duty include; lack of community support (31.2%; 104/356), lack of transport (23.7%; 79/356), lack of motivation and supervision was not significant. Lack of means of transport is a factor that can influence CHVs' motivation and subsequently affect their performance. One of the key respondents pointed out that:

“Community health volunteers in this unit do not have proper means of transport to move around while they do their daily work.... They walk on foot which is made more difficult with the harsh terrain. It takes a CHV up to three hours to move from one household to the other... this has reduced the number of households to be reached with health messages.... When they want to use a motorbike the roads are in bad state and therefore the fare is very high, CHV cannot afford to hire motorbike on daily basis so they decide to walk by foot”. (KII, 7).

4.6.1 Community Health Volunteer motivational factors

This study determined motivational factors for the performance of CHV roles in the community. More than seventy percent get respect from the community; this explains why they volunteer to serve the community. On the other hand, 15.3% were given a bike or a bag compared to 6% who were respected by the family members. This shows the kind of support CHVs get in order to perform their roles towards contributing to immunization uptake. Less than 4% and 2% make money by selling drugs and get paid salary respectively.

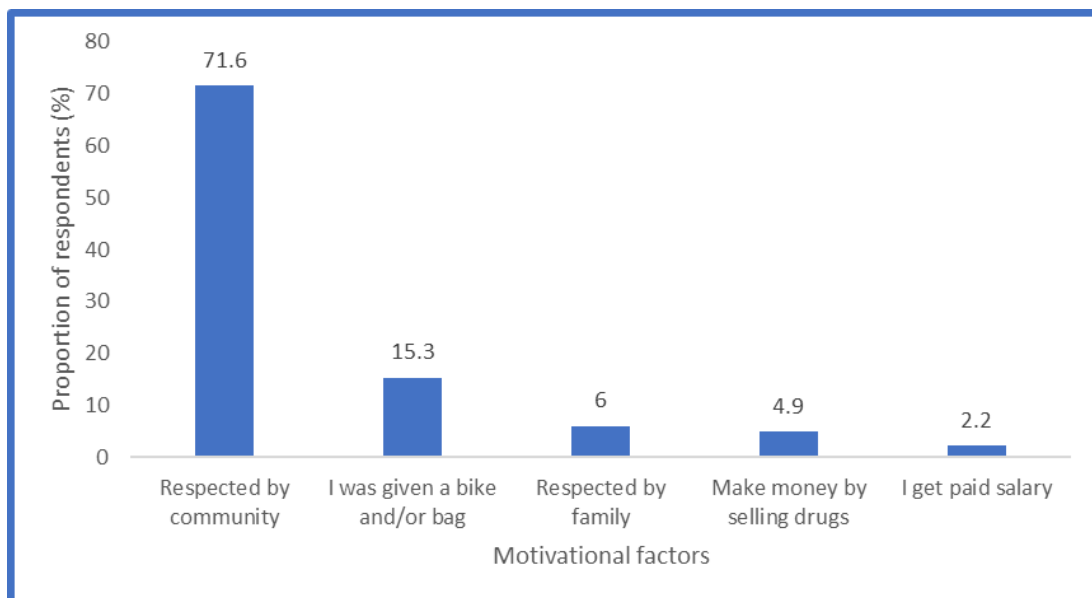


Figure 4.1: Motivational factors (n = 183)

4.6.2 Demotivating factors

Figure 4.2 shows demotivating factors that affect CHVs performance in the community. More than half (59.6%) do not get paid any money, 18% see no demotivators and 9.9% don't have time to do other things compared to 9.8 % who have to work hard. Only 2.7% people say bad things about them.

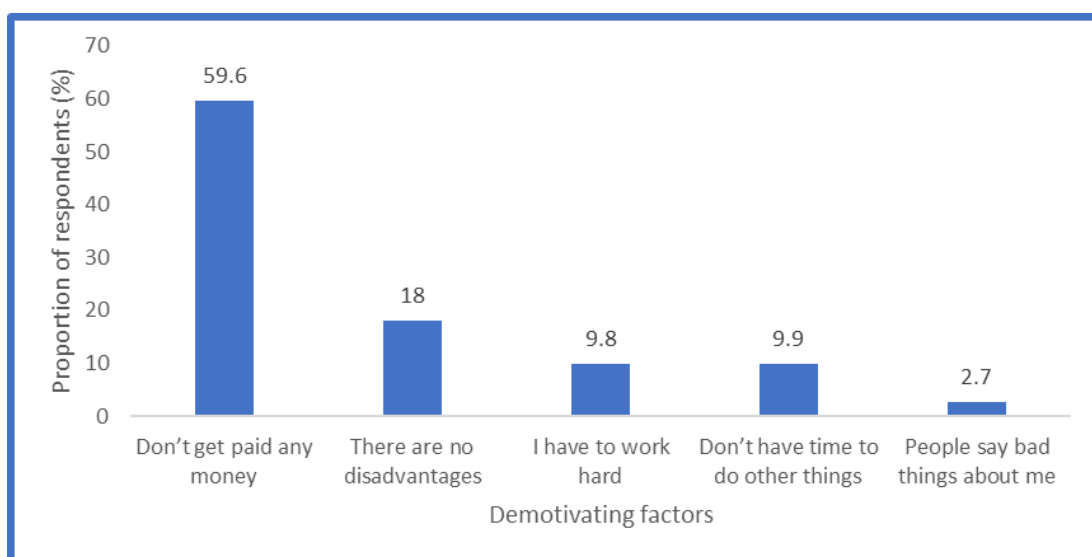


Figure 4.2: Demotivating factors CHV (n = 183)

4.6.3 CHV support to facilitate their work

The figure below shows how CHVs get support. The question “In pursuit of your work as a CHV, do you get any support to facilitate your work?”, was asked to determine how CHVs get support. Seventy percent do get support while (29.8%; 54/184) do not get support to facilitate their work.

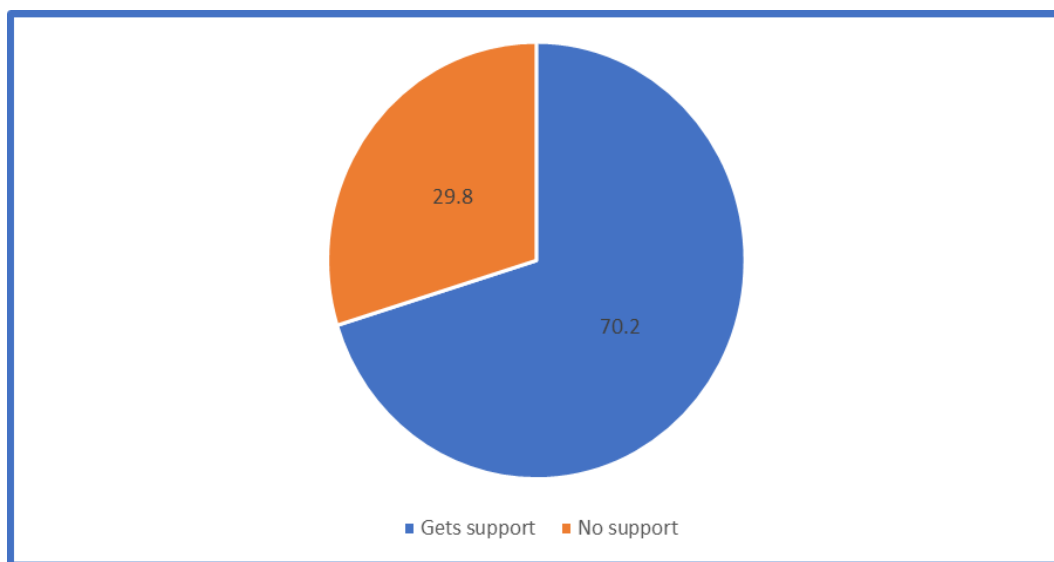


Figure 4.3: CHV gets support to facilitate work (n = 181)

4.6.4 Source of support of the CHVs

Figure 4.4 shows where CHVs get support from: community, health care workers and family members. Most of the community health volunteers (45.8%) get support from the community. There was 42% support from Health care workers and 21.2% from the family members. Such support included but not limited to; recognitions of the CHVs by the community, support supervision at the community level by the community health committees (CHCs), provision of incentives like financial and non-financial.

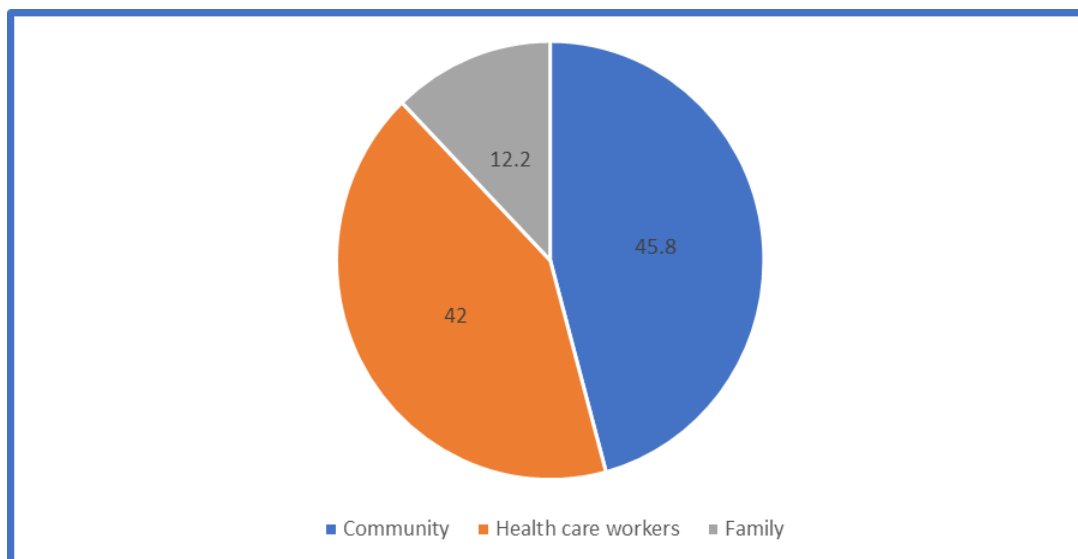


Figure 4.4: Source of support (n = 131)

4.7 Factors influencing performance of community health volunteers in immunization uptake

Evaluations of CHVs performance based on their individual factors yielded heterogeneous results and pointed to the importance of year of recruitment and supervision as presented in Table 4.6. Improved performance was noted where recruitment was done before 2013 as shown by 3.4-fold increase in performance (OR: 3.4; 95%CI: 1.2 – 10.1; $p = 0.03$) and up to 10 times likelihood to have performed well compared to those were recruited later than 2013. CHVs who were supervised by CHEWs were 4.5 times more likely to have performed better (OR: 4.5; 95%CI: 1.5 – 13.7; $p = 0.01$). Similarly, those who agreed that they had been supervised were four times more likely to have had better performance than those who were not (OR: 4.0; 95%CI: 1.3 – 12.0; $p = 0.02$). However, cases where CHVs confirmed they were in charge of less than 30 households (OR: 0.3; 95%CI: 0.1 – 1.0; $p = 0.04$) or topics covered during training included immunization (OR: 0.3; 95%CI: 0.1 – 1.1; $p = 0.07$) were negatively associated with higher performance,

although for the association marginally statistically significant for coverage of topics on immunization.

A supervisor CHEW5 had this to say:

“Community health volunteers were recruited through public meetings (baraza) with the local assistant chief or chief chairing the meeting.....people with good personal reputation, heart to do volunteer work were considered, The distribution of the CHVs was based on the village one come from”. (KII, 7).

Another supervisor from Sondany CU had to say this:

“The package of training community health volunteers are 12 which they will undergo and one of them is immunization.....They do undergo five days training – But the actual days were 3 due to partners support”. (KII 4)

Table 4.6: Factors influencing performance of community health volunteers in immunization uptake in Pokot South sub-county

Variable	Categories	n	Role performance of CHV		OR	95%CI	p value
			High (%)	Low (%)			
Gender	Male	124	88.7	11.3	0.4	0.1 – 1.5	0.2
	Female	60	95.0	5.0			
Age group in years	<40	112	91.1	8.9	1.1	0.4 – 3.0	0.8
	≥40	72	90.3	9.7			
Marital status	Married	177	90.8	9.2	4.3	0.8 – 24.2	0.1
	Others	7	71.4	28.6			
Level of education	None or primary education	118	91.5	8.5	1.3	0.5 – 3.5	0.6
	Secondary	66	89.4	10.6			
Year recruited	Before 2013	155	92.9	7.1	3.4	1.2 – 10.1	0.03
	After 2013	29	79.3	20.7			
Number of households assigned	<30	87	86.2	13.8	0.3	0.1 – 1.0	0.04
	≥30	97	94.8	5.2			
Number of days trained	≥5	133	90.8	9.2	1.6	0.5 – 4.9	0.4
	<5	39	87.2	12.8			
Supervisor	CHEW	160	93.1	6.9	4.5	1.5 – 13.7	0.01
	Others/CHC	24	75.0	25.0			
Topics covered during training	Immunization	26	80.8	19.2	0.3	0.1 – 1.1	0.07
	Others	158	92.4	7.6			
Refresher training conducted	Yes	100	93.0	7.0	1.8	0.6 – 4.9	0.2
	No	84	88.1	11.9			
Had been supervised	Yes	158	93.0	7.0	4.0	1.3 – 12.0	0.02
	Never	26	76.9	23.1			
Means of transport	On foot	169	91.7	8.3	2.7	0.7 – 11.0	0.1
	Other means	15	80.0	20.0			

4.8 Socio-demographic factors influencing performance of community health volunteers in immunization uptake

In the bivariate analysis, relationship between independent and dependent variables were computed and results presented in Table 4.7. Age groups of participants in the study (OR: 0.5; 95%CI: 0.3 – 0.8; $p = 0.01$), marital status (OR: 0.6; 95%CI: 0.4 – 0.9; $p = 0.02$), level of education (OR: 0.6; 95%CI: 0.4 – 1.0; $p = 0.04$) and gender of caregiver (OR: 0.6; 95%CI: 0.4 – 1.0; $p = 0.06$) negatively influenced CHV performance. Further analysis shows that households with protestant church members (OR: 0.4; 95%CI: 0.2 – 0.8; $p = 0.006$), caregivers who were employed (OR: 0.5; 95%CI: 0.3 – 0.9; $p = 0.02$) or where the children was older than 12 months (OR: 0.6; 95%CI: 0.4 – 1.0; $p = 0.04$), were 60%, 50% or 40%, respectively being unlikely to have performed well. The results show that religious beliefs have an influence on performance of CHVs as depicted by data on immunization coverage at the household level. Households whose members were from other religious groups other than Catholics, their children were less likely to have completed their immunization schedule.

Table 4.7: Caregivers Socio-demographic factors associated with CHV immunization uptake

Confounders	Immunization uptake	Role performance of CHV		Total (n)	OR	95% CI	p value
		High (%)	Low (%)				
<30 years age group	Completed	50.0	50.0	102	0.9	0.4 -1.9	0.8
	Not completed	52.5	47.5	40			
≥30 years age group	Completed	38.1	61.9	134	0.5	0.3 – 0.8	0.01
	Not completed	56.3	43.7	80			
Female caregiver	Completed	40.9	59.1	208	0.6	0.4 – 1.0	0.06
	Not completed	51.9	48.1	106			
Male caregiver	Completed	60.7	39.3	28	0.4	0.1 – 1.9	0.3
	Not completed	78.6	21.4	14			
Married	Completed	44.6	55.4	215	0.6	0.4 – 0.9	0.02
	Not completed	58.3	41.7	108			
Single/Others	Completed	28.6	71.4	21	1.2	0.2 – 6.0	1.0
	Not completed	25.0	57.0	12			
None or primary education	Completed	43.2	56.8	220	0.6	0.4 – 1.0	0.04
	Not completed	55.3	44.7	114			
Secondary and above	Completed	16	43.7	56.3	0.8	0.1 – 5.1	1.0
	Not completed	6	50.0	50.0			
Catholic	Completed	46.5	53.5	101	1.0	0.5 – 1.9	0.9
	Not completed	47.3	52.7	55			
Other religions	Completed	40.7	49.3	135	0.4	0.2 – 0.8	0.006
	Not completed	61.5	38.5	65			
Unemployed or housewife	Completed	45.6	54.4	90	0.9	0.4 – 1.9	0.7
	Not completed	48.7	51.3	39			
Employed	Completed	41.8	58.2	146	0.5	0.3 – 0.9	0.02
	Not completed	58.0	42.0	47			
Child ≤12 months	Completed	45.9	54.1	37	0.7	0.2 – 2.1	0.5
	Not completed	55.6	44.4	18			
Child more than 12 months	Completed	42.7	57.3	199	0.6	0.4 – 1.0	0.04
	Not completed	54.9	45.1	102			

4.9 Bivariate results on factors associated with immunization uptake

Immunization uptake as an outcome was considered where a child had received BCG, polio vaccine, DPTHiB, PCV 10 and Rota Virus vaccine. Results of bivariate analysis are presented in Table 4.8 two factors played key role in positively influencing uptake of immunization in the study area. Households that were visited by CHVs were 1.7 times more likely to have had fully immunized children than those that were not (OR: 1.7; 95%CI: 1.1 – 2.8; $p = 0.03$). The same was true where caregivers stated that CHV discussed vaccine preventable diseases during household visits. The children of that category of respondents were 1.6 more likely to be fully than partially immunized (OR: 1.6; 95%CI: 1.0 – 2.5; $p = 0.05$). Apparently, availability of the immunization card (OR: 0.3; 95%CI: 0.2 – 0.5; $p < 0.0001$); CHV having visited the household during the previous month (OR: 0.3; 95%CI: 0.2 – 0.5; $p < 0.0001$) knowledge about the community having recruited CHVs (OR: 0.4; 95%CI: 0.2 – 0.6; $p < 0.0001$); and CHVs being the source of information on immunization (OR: 0.4; 95%CI: 0.3 – 0.6; $p < 0.0001$) negatively influenced uptake with the results being statistically significant. Where there were immunization cards, the children were 70% less likely to have been fully vaccinated. Household who were aware that the community recruited CHVs, or those households that claimed that CHVs visited them once during the last months and those who relied on CHVs being the source of information on immunization, their children were 60% less likely to have completed their immunizations.

Table 4.8: Predictors of immunization uptake

Variable	Categories	n	Completion of all immunizations		OR	95%CI	p value
			Yes (%)	No (%)			
Availability of immunization card	Yes	166	66.3	46.4	0.3	0.2 – 0.5	<0.0001
	No	190	77.4	22.6			
Knowledge of CHV assigned to the household	Yes	328	65.9	34.1	0.8	0.3 – 1.8	0.5
	No	28	71.4	28.6			
Knowledge about who recruited CHV	Community	144	54.2	45.8	0.4	0.3 – 0.6	<0.0001
	Other	212	74.5	25.5			
CHV visits household	Yes	263	69.6	30.4	1.7	1.1 – 2.8	0.03
	No	93	57.0	43.0			
CHV visited household once during last month	Yes	116	51.7	48.3	0.4	0.2 – 0.6	<0.0001
	No	240	73.3	26.7			
CHV as source of information on immunization	Yes	127	52.8	47.2	0.4	0.3 – 0.6	<0.0001
	No	229	73.8	26.2			
Key messaging during last CHV HH visit	Vaccine preventable diseases	150	72.0	28.0	1.6	1.0 – 2.5	0.05
	Cannot remember	206	62.1	37.9			
Referred child when sick last year	Yes	63	71.4	28.6	1.3	0.7 – 2.4	0.3
	No	293	65.234.8				

CHAPTER FIVE

DISCUSSION

5.1 Overview

The main aim of this study was to find out the contributions of community health volunteers in immunization uptake in Pokot south sub county. The chapter discussed findings of the research in relation to the research objectives and research questions

Community Health volunteers (CHVs) provide a critical and essential link with health systems and are a powerful force for promoting healthy behaviors in resource-constrained settings (UNICEF, 2010). They are expected to perform the following role in relation to immunization uptake; visit households to provide health education regarding immunization and its importance, refer under-five children for immunization services, trace children who have defaulted from their immunizations schedules and bring the back to immunization program. This study attempted to determine the contribution of Community health volunteers regarding uptake of under-five immunization.

5.2 The contribution of community health volunteers in immunization uptake

The contributions of CHV on immunization uptake were assessed based on performance of CHVs regarding uptake of under-five immunization. The score was based on the following role requirements: availability of immunization card by caregiver, completion of all the vaccinations (BCG, polio, DPT/HiB, PCV 10, Rotavirus), knows assigned CHV, CHV visits, monthly visit, has heard of child immunization, CHV being the source of information on immunization and CHV discusses immunization issues. From the result, in view of the role performance

scores being skewed, therefore, role performance was categorized into 2 levels of high and low performance using its median as cut-off point. CHV whose role performance score was above the median (>3) was categorized as high performance and vice versa.

From the result, in view of the role performance scores being normally distributed, therefore, role performance was categorized into 2 levels of high and low performance using its mean as cut-off point. CHV whose role performance score was above the median (>3.89) was categorized as high performance and vice versa. Community health volunteers play an important role in increasing immunization uptake in communities. They are responsible for visiting households at their catchment areas once per month to share health messages; facilitate referrals and trace defaulters of immunization program. This study placed an emphasis on the CHVs contribution on the uptake of immunization services.

CHV is expected to be responsible for 50 households (MOH, 2006) but for the case of Pokot South, a CHV has an average of 32 households due to poor road network and harsh terrain. Based on the results, about half (47.2%) CHVs conduct home visiting. In the last one month prior to the study, 49.2% had visited less than 10 households in contrast to 42.6% who had visited at least 10 households. The results also revealed (73.8%) of the households were visited in the last one month. This result is much higher than that of a similar to a study conducted in Mali, which showed the overall results of the households visited by CHVs was 40%, (Freddy, *et al.*, 2009). In another study conducted in Sergipe where CHVs visited 80% of the households, there was an increase in immunization uptake (Juraci, & Cesar, 2005). A home visit was associated with better completion of immunization schedule and

therefore, when CHV visits households then the more likelihood of increased immunization uptake.

From the study results the number of households visited and provided with health education regarding immunization were 69.6%. This was supported by more than a third of the caregivers (35.4%) who cited CHVs as source of their information regarding immunization and about 43.1% reported that during home visiting they discuss vaccine preventable diseases with their CHVs. It is also backed by a review of 21 RCTs by Gogia, *et al.*, (2011) which reported that CHVs could contribute to improved child health through maternal education (Gogia, *et al.*, 2011). Sharma, *et al.*, (2014) went further to state that CHVs can enhance immunization outcomes, promote adoption and bring care closer to the households. Similarly, evaluation of CHV work done by UNICEF and MOH in Kenya showed that services offered by CHVs through the community strategy include health education to enhance behavior change, disease prevention and access to safe water and basic care (MOH & UNICEF, 2010).

Further findings revealed that 18.5% of the community health volunteers conducted defaulter tracing for children who fail to continue with the programme. Defaulter training is one of the roles that CHVs are expected to play to improve on uptake of immunization (MOH, 2006). On referrals, the study results show that 14.1% children were referred to health care facilities to seek health services of which 120 (65.6%) children were referred for immunization services. Out of those who were referred nearly all (86.9%) had a referral note. This referral role of CHVs was confirmed by Smith and others (2014) who reported that there CHVs referred children for immunization services, among others. The functions of CHVs varied from

information services aimed at promoting awareness-raising treatment for community members through informing and learning regarding communicable diseases and maternal and child health, including immunization (Gogia & Sachdev, 2016).

5.3 Factors influencing performance of community health volunteers in immunization uptake

Factors influencing CHV performance were evaluated by examining the training (topics covered), supervision, and transportation system, use of incentives and conduct of refresher trainings with the outcome being their performance. Mean of the response variable was derived from scoring cases where at least a household is assigned, tasks are assigned, made a visit in the past month, referred a child for immunization in the last one month and refers severely ill child. From the result, in view of the role performance scores being normally distributed, therefore, role performance was categorized into 2 levels of high and low performance using its mean as cut-off point. CHV whose role performance score was above the median (>3.89) was categorized as high performance and vice versa.

Several factors may affect the quality and effectiveness of CHVs, both individually and on a programmatic basis. CHVs function in dynamic, relational settings (Sharma, *et al.*, 2014).

5.3.1 CHV individual characteristics: socio-demographic profile

Age has been found to be an important factor in the performance of the CHVs, Community health volunteers who were less than forty years (37.6%) were 1.1 times more likely to perform highly than their counterparts above forty years. This can be due to other responsibilities. This finding is consistent with Hsien, *et al.*, (2017)

study on CHV role performance, indicating the age groups with the best role performance are ranging from 35 to 44 years and 24 years and below. This can be attributed to career progression for the younger volunteers and the hope that they might be paid in future. A study in Kisumu West district of Kenya found older age (>40 years) to be a strong predictor of CHV productivity (Kawakatsu, *et al.*, 2012), while the opposite was true in Guinea-Bissau (Lopes, *et al.*, 2014). This finding was contrary with a study in Mali that older CHVs (medium age was 42 years old and range 18 to 83) tend to perform better than young community health volunteers (Perez, *et al.*, 2009).

Based on the result, it is shown that marital status was an important factor that influences on how community health volunteers perform their roles. Those who were married were 4.3 times more in performing of their duties. Many findings have shown that CHVs who were married had better support for performing household duties than those who were not married, which explains the high performance (Kok, *et al.*, 2017). However, another study also indicated that no difference was found between married and unmarried CHVs (Kawakatsu, *et al.*, 2012). Perhaps these differences could have been due to cultural perception on the role of married person in a society. Previous studies have highlighted the importance of a CHV's socio-demographic characteristics for their performance, including age and sex (Kawakatsu, *et al.*, 2012).

It was also established from the findings that Community health volunteers who were recruited before 2013 are more likely to perform better ($p = 0.03$) than those recruited after 2013; This period is when there was mass recruitment of CHVs due to introduction of free maternity services in the country and the roll out of community

strategy in west Pokot County. This can be explained by the fact that those who had been in the system for longer were more experienced in their work with resultant improvement in role performance.

Most of the respondents were males (67.4%; 124/184) compared to the female counterparts (32.6%; 60/184). This finding was in line but lower than the study done in Burkina Faso, where 81.5% of the CHVs were male compared to their counterparts (Roberton, 2015). On the contrary, Egypt reported that, they totally utilize females as CHWs (World Health Organization, 2016) probably in line with Islamic practice where only females are allowed to interact with mothers over child health matters.

Occupation Almost, nine out of ten (89.1%) relied on CHV as an occupation. This explains the stipend given to CHV by government when the community strategy was introduced. Nearly two thirds (64.1%) attained primary education. It was important to determine level of education because education imparts knowledge and intellectual capacities that would help CHVs perform their duties. This conforms to the health policy of 2006 that says one qualifies to be recruited as CHV when he/she is able to read and write. According to Roberton, (2015), performance is associated with a CHW's, literacy, and education. This is worth for effective performance. Standardized curricula within a country can improve CHV knowledge, skills and performance based on local needs and priorities. World Health Organization, (2016), reported that, for CHVs to provide quality work, there should be acquire core competencies, with additional training modules based on epidemiological variation within a country. A country like Oman have utilized Diploma nurses, doctors and other university degree social workers as CHVs and achieved excellent performance.

Education has been demonstrated to improve performance of all the services provided by CHVs including immunization.

5.3.2 Health System Factors

Health system factors (training, supervision) have been found to influence the performance of CHVs, the study results highlighted that, CHVs who received training for more than five days are 1.6 times more likely to perform better than their counterparts and for those who received refresher trainings are 1.8 times more to perform better although results are not satisfactory. Early and on-going training is a critical component to ensuring that CHVs have the resources and expertise to carry out their job (Haines, *et al.*, 2007). Refresher training is important in improving the skills and knowledge of CHVs (Msisuka, *et al.*, 2011), consistent training and refresher training of CHVs with ideal content of addressing immunization program will therefore improve their performance.

The results showed that supervision is an important factor to influence better performance. CHVs that were supervised by CHEWs were 4.5 times more likely to have performed better. Similarly, those who agreed that they had been supervised were four times more likely to have had better performance than those who were not. Supervision contributes to high CHV morale and high productivity. Community health interventions require supportive supervision to community health volunteers that will contribute to increased immunization uptake. Studies have shown that when supervision of CHVs was vigorous and extra resources were directed to primary health care, immunization services will improve (Hill, *et al.*, 2014). This result confirms the findings of a study conducted in Nepal that indicated that FCHVs supervised by the government health care system can perform better in maternity

care including immunization services in resource-poor areas. Petersen et al (2014) concluded that sufficient preparation, oversight and surveillance of CHVs can lead to better performance of the CHVs in improving services. Therefore, supervision is an important factor to improve better performance, since it contributes to high CHV morale and high productivity. Previous studies have shown a link between CHV supervision and performance, and the study found a similar link in our studies too (Sharma, *et al.*, 2012). What appears to be most important, however, is not the mere fact of supervision, or the frequency of supervision visits, but rather the nature and quality of supervision; this demands the CHEWs need to visit CHVs in their working area and support them as they provide the service: This human aspect of supervision is receiving increasing attention, not only for CHVs but for facility-based health workers (McAuliffe, *et al.*, 2013). For example, Immunization, HIV, Nutrition, maternal Health and sanitation supportive supervision in CHV programs have yielded promising results (Robertson, *et al.*, 2015a). Many reports found that positive oversight was a vital facilitator for the effectiveness of CHV-led services, while the absence of such encouragement from the health care system culminated in a service breakdown (Smith, *et al.*, 2014). Another study by Mdege, *et al.*, (2013) has supervision as a significant motivating tool to CHVs to perform better (Mdege, *et al.*, 2013).

A research on management of CHs in the Kalabo District of the Republic of Zambia shows that inadequate supervision leads to weak CHV morale and reduced performance (Ludwick, *et al.*, 2014). For instance, this did not have and a positive impact on performance because the reliability was low and almost half of the CHVs did not gain from supervisory visits. Therefore, the study finding suggests that supervision is a key factor in improving the performance of community health

volunteers. Other studies have showed the role of health system factors, such as the training of CHVs and the supervision of CHVs (Liang, *et al.*, 2017), financial and non-financial incentives as factors that improve performance (Kok *et al.*; 2015).

5.3.3 Community Factors

From the results, majority of the community health volunteers do get support from members of the community (45.8%) and health care workers at (42 %). Such support included; training and supervision in the community setting by the CHCs, recognitions from the community members, and provision of incentives to include financial and non-financial. This conforms to results of a recent systematic review of “intervention design factors” and their influence on the performance of CHVs found that financial and non-financial incentives, clearly defined CHV roles, supervision and continuous training, and the embedment of CHVs in community and health systems all helped to enhance performance (Kok, *et al.*, 2014). Tripathi *et al.*, (2016) On the other hand, it suggested that the participation of community members in the recruitment of CHVs, the appreciation and acceptability of volunteers and group ownership were seen as promoting progress. Other studies have shown a link between CHV performance and the existence of community health committees (Callaghan-Koru, *et al.*, 2012; Jaskiewicz & Tulenko, 2012).

Maji, *et al.*, (2010) came to similar conclusions that recognitions and support at the community–level for CHVs usually motivate community health volunteers to volunteer more. On the contrary, this finding is not in line with Yoshito *et al.*, (2012) who reported that negative opinions about the quality and affordability of health care by community members and rejection or lack of support by family members were main motivators for volunteers.

5.4 Perceptions of stakeholders on the role CHVs in increasing immunization uptake

The study highlighted that a higher proportion of the caregivers were satisfied with the work done by the community health volunteers 204 (57.3%) while 152 (42.7%) were dissatisfied this indicates that acceptance of CHV services by the caregivers will improve their performance. The level of satisfaction is high at 57.30%. The study findings show that community do respect CHVs which stands at 71.6%, this is an indication that they are recognized and valued.

Public appreciation and acknowledgement is a motivating factor that will lead to increased efficiency of CHVs. The result is supported by Maji, *et al.*, (2010) who revealed that recognition and respect at the community level and the status of a health volunteer motivates volunteers to take part in community health interventions. Ting'aa & Kaprom (2019) also found out almost similar results on the perceptions of the community towards the health community workers on their study on the perceptions and attitude of health workers working in West Pokot County were rated by the community to be 54%.

Individual, organizational and community level recognitions and value impeded CHV to effectively carry out their work in the community. Financial and non-financial rewards to the CHVs by the stakeholders have been shown to have a positive impact on the actions and conduct of CHVs in delivery health services including immunization services (Haines A, 2007).

Lack of recognition as a factor influencing performance of CHVs has been reported by Perez, Hamady, Dastagine, & Altmann, (2009). In their study, 33.7% of the respondents declared that they did not prefer going to the CHV before going to the other services including immunization suggesting lack of recognition of CHVs by some community members.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Overview

This chapter presents the overall conclusion of the findings and recommendations. It must be emphasized that the aim of this study was to determine the contribution of community health volunteers in immunization uptake among children less than two years in Pokot south sub county of west Pokot. The Chapter ends with recommendations and for further research.

6.2 Conclusion

CHVs play a major role in under-five immunization uptake as confirmed by both CHVs and caregivers. They act as link to households, communities and the health facilities. Among the identified roles include activities such as sharing health messages during home visiting and talk to mothers on the importance of immunization of the child, the need to complete immunization schedule, defaulter tracing by going through health facility immunization register and referral on under-fives. The year when recruited, particularly those recruited before 2013 with more experience and being regularly supervised by CHEWs are key factors that improve performance in the sub-county which is characterized by harsh terrain. Performance was poor where CHVs were assigned less than 30 households, especially in areas which are relatively hard-to-reach. Based on the response from CHVs, the proportion of those who advised caregivers on immunization was fairly low which could be attributed to topics covered during training. Available evidence shows that even where immunization topics were covered during training, CHVs were 70% less likely to have performed well. Whereas the training of CHVs on the 12 packages is

supposed to take 5 days, in the study area, this was reduced to 3 days which could have affected their performance in sharing of messages on immunization.

The community has positive perception on contributions of CHVs in the study area as they are recognized and value the work they do. Recognition and respect at the community level motivates volunteers to take part in community health interventions in spite of the harsh environment where they volunteer their services.

6.3 Recommendations

The following recommendations are guided by the study objectives.

- This study recommends further strengthening of partnership between health facilities and CHVs to enhance their contribution on the uptake of immunization in the sub-county.
- Study results identified caregivers' knowledge gap on immunization which is attributed to inadequate coverage of topics on immunization. The study recommends adherence to the recommended number of days for targeted and continuous training for CHVs.
- Given the significant positive effect that supervision and training can have on CHVs performance, there is need for improvement in quality supervision and monitoring of CHVs by MOH and CHEWs. However, this cannot give positive results unless the number of assigned households is reviewed for those from relatively hard-to-reach areas. CHVs with fewer number of household performed poorly with respect to their role on immunization of under-five year old children.
- Based on perceptions on CHVs contribution on immunization, the Community Health Committees (CHC) should look for ways on how to recognize and support CHV to motivate them.

- County government (Health Department) should look for ways of rewarding CHVs with incentives and transport.
- The study recommends further research on the contribution of CHVs in immunization programming in the wider West Pokot County where comparison can be made between sub-counties with better performance on immunization uptake and those with poor performance (hard-to-reach sub-counties).

REFERENCES

- Arooj S, Ali S, Baber N, Abbasi A, Ali M (2013). Socioeconomic factors effecting polio vaccination in Pakistan
- Baschieri S.(2005). Contextual influences on the use of health facilities for childbirth in Africa. *Am J Public Health* 96 , 84-9.
- Bagonza J, Kibira SP, Rutebemberwa E.(2014). Performance of community health workers managing malaria, pneumonia and diarrhoea under the community case management programme in central Uganda: a cross sectional study. *Malar J.* 2014;13:367. Published 2014 Sep 18. doi:10.1186/1475-2875-13-367
- Cheboi, S. (2011). Utilization of unskilled delivery services in Marakwet unpublished master thesis. *PubMed* , 28-32.
- GilMore (2013). Effectiveness of community Health Workers delivering preventive interventions for maternal and child health in low-and -middle income countries. *BMC Public Health* , 13(1) 847.
- Glenton (2010). The female health Volunteer programme Nepal: decision makers'perceptions of Volunteersim payment and other incentives. *social sciences and Medicine*, 70(12), 1920-7.
- Gorgia S, HS Sachdev (2010). Home visits by community health workers to prevent neonatal deaths in developing countries: a systematic review
- Haines A, Sanders D, &Lehmann U, (2007). Achieving child survival goals: Potential contribution of community health workers. *Lancet*.369(9579):2121–2131.[https://doi.org/10.1016/S0140-6736\(07\)60325-0](https://doi.org/10.1016/S0140-6736(07)60325-0)
- Jaskiewicz W, &Tulenکو K. (2012). Increasing community health worker productivity and effectiveness: a review of the influence of the work environment. *Human resources for health*.
- Juraci A. Cesar (2005). Community Health Workers in Sergipe, Brazil: Implications for their future role in maternal and child health
- Kawakatsu, Yoshito & Tanaka, Junichi & Ogawa, Kazuya & Ogendo, Kenneth & Honda, Sumihisa. (2017). Community unit performance: factors associated with childhood diarrhea and appropriate treatment in Nyanza Province, Kenya. *BMC Public Health*. 17. 10.1186/s12889-017-4107-0
- KDHS. (2008). Kenya Demographic and Health Survey 2008. Nairobi: Kenya National Bureau of Statistics.
- KDHS. (2014). *Kenya Demographic and Health Survey 2014*. Nairobi: Kenya National Bureau of Statistics.
- Kok, M.C., Broerse, J.E.W., Theobald, S. *et al.* (2017). Performance of community health workers: situating their intermediary position within complex adaptive health systems. *Hum Resour Health* 15, 59.

- Kok MC, Dieleman M, Taegtmeyer M, (2015) Which intervention design factors influence performance of community health workers in low- and middle-income countries? A systematic review. *Health Policy Plan.* 2015;30(9):1207-1227.
- Maji D, Hutin Y, Ramakrishnan R,& Hossain S, De S. (2010) Strategies to improve the performance of female health workers in West Bengal: A cross-sectional survey. *The National Medical Journal of India*, 23(3):137-142
- Mdege ND, Chindove S, Ali S. (2013). The effectiveness and cost implications of task-shifting in the delivery of antiretroviral therapy to HIV-infected patients: a systematic review. *Health Policy and Planning* 28: 223–36.
- Melvin Hsien Liang Chung, Helmy Hazmi, Whye Lian Cheah,(2017) Role Performance of Community Health Volunteers and Its Associated Factors in Kuching District, Sarawak. *Journal of Environmental and Public Health*, vol. 2017, Article ID 9610928, 9 pages, 2017. <https://doi.org/10.1155/2017/9610928>
- Ministry of Health (2007). *Reversing the trends The second National Health Sector Strategic Plan of Kenya.A Manual for Training Community Health Workers. Ministry of Health Nairobi Kenya.* Nairobi, Kenya: Ministry of Health.
- Mishra A.(2014). ‘Trust and teamwork matter’: Community health workers’ experiences in integrated service delivery in India. *Glob Public Health.*;9(8):960–974.
- Mirkuzie Woldie, Garumma Tolu Feyissa, Bitiya Admasu, Kalkidan Hassen, Kirstin Mitchell, Susannah Mayhew, Martin McKee, &Dina Balabanova,(2018). Community health volunteers could help improve access to and use of essential health services by communities in LMICs: an umbrella review, *Health Policy and Planning*, Volume 33, Issue 10, December 2018, Pages 1128–1143,
- Langelihle Mlotshwa, Bronwyn Harris, Helen Schneider & Mosa oshabela (2015) Exploring the perceptions and experiences of community health workers using role identity theory, *Global Health Action*, 8:1, DOI: 10.3402/gha.v8.28045
- Msisuka, C. (2011). An evaluation of a refresher training intervention for HIV lay counsellors in Chongwe District, Zambia. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 8(4), pp.204–209.
- Odondi, J. (2010). *Community Strategy UNICEF Evaluation report Institution: promotive health consultants partners: division of community health Nairobi Kenya.* Nairobi, Kenya: UNICEF.
- Odondi, J. (2010). Oyore John (2010). Community Strategy UNICEF Evaluation report Institution: promotive health consultants partners: division of community health Nairobi Kenya. Nairobi, kenya: UNICEF.
- Olayo R, Wafula C, &Aseyo E. (2014). A quasi-Experimental assessment of the effectivenessof the community health strategy on health outcomes in Kenya. *BMC Health Service Research* , 15-53.

- Oliver M, Geniets A, Winters N, Rega I, & Mbae S.M. (2015). What do community health workers have to say about their work, and how can this inform improved programme design? A case study with CHWs within Kenya. *Global Health Action.*; 8: 27168.
- Perez, F., Ba, H., Dastagire, S.G. (2009). The role of community health workers in improving child health programmes in Mali. *BMC International Health Human Rights* 9, 28 (2009)
- Petersen I, Fairall L, Egbe CO, & Bhana A. (2014). Optimizing lay counsellor services for chronic care in South Africa: a qualitative systematic review. *Patient Education and Counseling* 95: 201–10.
- Roberson, T. (2015). Performance of community Health Workers in an integrated community case management program in Burkina Faso
- Sanders, U. L. (2007). The state of the evidence on programmes, activities, costs and impact on health outcomes of using community health workers. Geneva: WHO.
- Sarita, P. (2017). The contribution of Female Community health Volunteers (FCHVs) to maternity care in Nepal; a qualitative study . *BMC Health Services Research* , 8-11.
- Sharma, R., Webster, P. & Bhattacharyya, S., (2014). Factors affecting the performance of community health workers in India: a multi-stakeholder perspective. *Global health action*.
- Stephenson, R., Baschieri, A., Clements, S., Hennink, M., Madise, N., (2007). Contextual influences on modern contraceptive use in sub-Saharan Africa. *American Journal of Public Health*, 97 (7), 1–7.
- Teralynn Ludwick, Jennifer L Brenner, Teddy Kyomuhangi, Kathryn A Wotton, Jerome Kahuma Kabakyenga, (2014) Poor retention does not have to be the rule: retention of volunteer community health workers in Uganda. *Health Policy and Planning*, Vol 29, Issue 3, May, Pages 388–395,
- Ting'aa, S.L. & Kaprom B. (2019). Community perceptions on the effectiveness of interpersonal communication forms in maternal and child mortality reduction campaigns in West Pokot County, Kenya. *IOSR Journal of Humanity and Social Science (IOSR-JHSS)* Jour Vol. 24 issue 5 Ser. 5, (May) 04-11Eiss:2279-0837
- Tripathi A, Kabra SK, Sachdev HPS, Lodha R. (2016). Home visits by community health workers to improve identification of serious illness and care seeking in newborns and young infants from low- and middle-income countries. *Journal of Perinatology*, 36: S73–81.
- Turin, D. R. (2010). "Health Care Utilization in the Kenyan Health System: Challenges and Opportunities." *Student Pulse*, 2(09). Retrieved from <http://www.studentpulse.com/a?id=284>. *Challenges and Opportunities.* " *Student Pulse*, 2(09). , 9-25.

- Smith P. L, Willey B, & Kedenge S (2014). Community health workers and Stand-alone or integrated case management of malaria: a systematic literature review. *The American Journal of Tropical Medicine and Hygiene*, 91: 461–70
- UNICEF. (2015). *Assessing the Community Health Workers Role in The Polio eradication Initiatives Social Mobilization Strategy in Afghanistan*. Afghanistan: UNICEF.
- UNICEF. (2010). *Evaluation report on the community Health strategy implementation in Kenya October*, Nairobi: UNICEF.
- UNICEF. (2013). *Global Polio Eradication Initiative. Polio eradication and endgame strategic plan (2013-2018)*. Geneva: World Health Organization.
- WHO. (2015). Immunization coverage in WHO regions: A review Article. *Immunization coverage in WHO Regions* , 14-20.
- WHO. (2006). The Global shortage of Health Workers and its impact. *WHO fact sheet 302*, 20-28.
- WHO. (2006). *The Global shortage of Health Workers and its Impact. WHO fact sheet 302. Geneva World Health Organization. 2006*. Geneva : World Health Organization.
- WHO. (2006). *WHO (2006) The Global Shortage of Health Workers and its Impact. Fact sheet (April) No.302. World Health Organization, Geneva*. Geneva: World Health Organization.
- WHO/UNICEF. (2015). *Immunization facts and figures Nov. 2015 update Geneva*. Geneva: WHO.
- WHO/UNICEF (2020). National immunization coverage estimates, 2019 revision; United Nations, Development of economic and social Affairs, populations Divisions 2020.
- World Health Organization (2018). 10 facts on immunization. World Health Organization, 2018. [Updated March, 2018].
- Yeonji Ma , Heunghye Kim , Yinseo Cho , Jaeeun Lee , Joseph Kwami Degley , Abdul-Ghaffa Adam , Gyuhong Lee , Hoonsang Lee and Seungman Cha (2017). Effects of community health volunteers on infectious diseases of children under five in Volta Region, Ghana: study protocol for a cluster randomized controlled trial. *BMC Public Health* (2017) 17:95.
- Yoshito, K. (2012). Factors influencing the performance of community health workers in Kisumu West, Kenya. *Primary Health Care Research & Development*, 13, pp 294-300. doi:10.1017/S1463423612000138. *Primary Health Care Research & Development* , 294-300.
- Zullinger, H. P. (2012). An overview of current evidence with recommendations for strengthening community health worker programmes to accelerate progress in achieving the health related millenium Development goals. *How effective are community health worker* , 10-24.

- Zulliger R, Moshabela M, & Schneider H. (2014) "She is my teacher and if not for her I would be dead: exploration of rural South African community health workers' information, education and communication activities. *AIDS Care*, 26: 626–32.
- Zelee Hill, Mari Dumbaugh, Lorna Benton, Karin Källander, Daniel Strachan, Augustinus ten Asbroek, James Tibenderana, Betty Kirkwood & Sylvia Meek (2014) Supervising community health workers in low-income countries – a review of impact and implementation issues. *Global Health Action*, 7:1, DOI: 10.3402/gha.v7.24085

APPENDICES

APPENDIX I: INFORMED CONSENT FORM

Dear Respondent,

My name is Samuel Lopar; I am a master's student at Masinde Muliro University, School of Nursing, and Midwifery and Paramedical Sciences. I am required to conduct a research work on the contribution of community health volunteers in immunization uptake in marginalized areas in Pokot south sub- county, Kenya. I am collecting information from selected respondents and the information will be used for academic purposes only and your name will not be mentioned in the report. Your opinion, knowledge and experience in this study are important and hence I kindly ask you to be honest and truthful while answering the questions and remember there is no right or wrong answers. If you do not want to answer any questions you may skip and you can stop the interview any time.

I will be taking pictures and notes in the process of interview which may be used as a part of appendixes and your face will be protected. The notes and pictures will be kept safely and will be destroyed after the study. If you have any question after the interview, you may contact me on my phone number **0722946431**

Certificate of Consent

I have understood what the interviewer wants and I consent to participate in this study.

Yes (☐)

No (☐) Why-----

Name of interviewer

Signature

Date

APPENDIX IV: COMMUNITY HEALTH VOLUNTEERS' QUESTIONNAIRE

SUB-COUNTY NAME :..... □ □	
WARD □ □	
VILLAGE NAME..... COMMUNITY UNIT	
NAME..... □ □	
INTERVENTION NUMBER.....CONTROL □ □	
RESPONDENT NO	<div style="font-size: 2em; font-weight: bold;">□ □ / □ □ / □ □ □ □</div>
NAME OF INTERVIEWER.....	
DATE OF INTERVIEW.....	

PART 2: RESPONDENT'S

S/NO	(CHV) CHARACTERISTICS (DEMOGRAPHICS)	
1.	How old were you at your last birthday?	Age in completed years.....
2.	What is your gender?	Male 1 Female 2
3.	What is your marital status?	Married 1 Single..... 2 Widowed3 Widowed4 Divorced 5
4.	What is the highest level of school that you attended?	Never 0 Pre-school 1 Primary 2 Secondary..... 3 University 4
5.	What is your primary occupation?	CHV..... 1 Agricultural worker 2 Teacher 3 Art worker 4 Other _____
6.	Approximately how many hours per week do you work as a CHV?	_____

7.	Are you paid a regular salary for any work you do as a CHV? If yes, ask: How much are you paid per month in total for all the work you do as a CHV	Yes 1 No 2
Roles of CHVs in contribution to immunization uptake		
8.	In what year did you first become a CHV? Probe if necessary: For how many years have you been a CHV?	Year _____
9.	How you were recruited to become a CHV?	Elected by the community1 NGO.....2 Ministry of health3 Others specify.....
10.	How many households were you assigned to take care of in this community unit?
11.	State the key tasks which you are responsible for?	Sharing health messages to groups1 Defaulter tracing.....2 Referring children for immunization at facility3 Home visiting.....4
12.	In the past one month, how many households did you visit?	None.....1 Less than 10.....2 More than 10.....3
13.	What do you usually do when you visit a HHs Record all responses.	_____ _____ _____
14.	How many clients did you refer last month for immunization services?	None1 Only one2 2-53 6 and above4
15.	What do you do when referring severely sick children? Ask: anything else? Record all responses.	Write a referral note 1 Help arrange transport 2 Provide transport 3 Other (specify)_____
16.	Do caregivers usually accept referral their children for immunization?	Yes1 No2 Don't know 3

Factors influencing CHVs performance in promoting immunization uptake		
17.	Please tell me about initial training you received to prepare you for your role as a CHW.	Duration _____ days
18.	Who is your supervisor?	CHC members1 CHEW2 MOH officials3 NGO.....4
19.	List the topics covered:	Community strategy1 Vaccinations2 Newborn care.....3 Sanitation and home hygiene4 Others
20.	Have you ever received immunization refresher training? (i.e. additional training since the initial training)	Yes 1 No 2
21.	What (other) training have you received since becoming a CHV? Ask: Anything else?	Nutritional rehabilitation1 ITNs 2 Infant and young child feeding..... 3 Antenatal care 4 Family planning 5 HIV/AIDS 6
22.	In what month and year did you last receive supervision?	Month _____ year _____ Never received supervision
23.	Where do your supervisions usually take place? Record all responses.	Village 1 Health Facility 2 Other (specify)_____
24.	Please describe the transportation systems available to get you to clients homes	By foot1 Using a bicycle2 Using motorbike3 Boarding vehicles (PSV)4
25.	What does your supervisor usually do during your supervisions? Ask: Anything else? Record all responses.	Instructs you on immunization issues1 Uses a supervision checklist 2 Provides verbal feedback 3 Trouble shooting, problem solving 4 Record Review5 Other (specify)_____

26.	Is there difference in immunization uptake since you started working in this community unit?	YES1 NO2
27.	If Yes, what is the difference since you started working as CHV?	Mothers are more informed1 People go to clinic regularly2 Diseases have gone down3 Many children are vaccinated4 Other specify.....5
CHVs perceived support from the stakeholders regarding their contribution in immunization uptake		
28.	What are the advantages of being a CHV? Do not read the list to the CHV. Wait for the CHV to respond and then ask: Record all responses.	I get paid a salary1 I was given a bike and/or bag 2 I make money by selling drugs ... 3 I am respected by my family 4 I am respected by the community. 5
29.	What are the disadvantages of being a CHV?	I have to work hard 1 I don't get paid any money 2 I don't have time to look after my family3 I don't have time to do other things 4 People say bad things about me...5 There are no disadvantages 6 Other (specify)_____
30.	In pursuit of your work as a CHV, do you get any support to facilitate your work?	Yes1 No2
31.	If yes, from whom	Family1 Community2 Health care workers3
32.	If Not, can you explain	_____ _____


Thank you for your time and participation

APPENDIX II: HOUSEHOLD QUESTIONNAIRE

SUB-COUNTY NAME:..... <input type="checkbox"/> <input type="checkbox"/>	
VILLAGE NAME..... COMMUNITY UNIT	
NAME..... <input type="checkbox"/> <input type="checkbox"/>	
INTERVENTION NUMBER.....CONTROL <input type="checkbox"/> <input type="checkbox"/>	
RESPONDENT NO DATE OF INTERVIEW..... NAME OF INTERVIEWER.....	<div style="text-align: center; font-size: 1.2em;"> <input type="checkbox"/><input type="checkbox"/>/ <input type="checkbox"/><input type="checkbox"/>/ <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> </div> INTERVIEWER CODE..... <input type="checkbox"/> <input type="checkbox"/>

PART 2: RESPONDENT'S CHARACTERISTICS (CARE GIVER WITH A CHILD 12-24 MONTHS)

201	202	203	204		205	206	207	208
	What relationship is (name) to the head of household?	What is (name's) gender?	What age is (name)?		Marital Status	What is the highest level of school (name) has completed?	What is your religion	Occupation
			Years	Months (= < 24 months)				
Caregiver's details								
child's details (11-24 months)								

	1=Head 2=Spouse 3=Child ≥5 year 4=Child 12 – 59 mths 5=Infant 1 – 11 mths 6=Neonate < 1 mnth 7=Relative 8=Orphan 9=Other (Specify)	1=Male 2=Female	 Write the # of years. For children < 5 years write the # of months.	1.Married 2..Single 3.Widowed 4.Widowed 5. Divorced 6.Under age 7. Other (specify)	Write the number for the grade level 0 = never 1=Pre- school 2= Primary 3=Secondary 4=- University 5=-Post- graduate 7=DK	1=Catholic 2=Protestant 3=Muslim 4=Atheist 5=Other (Specify)	1=Underage (0-5 yrs) 2=Pupil/student(6-18) 3=Not going to school(6-18) 4=Housewife 5=Pastoralist 6=Employed (Formal) 7=Unemployed 8=Business/Self- employed 9=Farmer 10=Casual labour 11=Retired 12=Elderly 13=Other (specify)	
ASK THE QUESTIONS ABOUT THE CHILD (12-24 MONTHS).								
101	Do you have a card where (NAME'S) vaccinations are written down? IF YES: May I see it please?				1 = Yes, Seen <i>Go to Q102</i> 2 = Yes, Not Seen <i>Go to 102</i> 3 = No card, <i>Go to 102</i>			
MARK A TICK (✓) THE VACCINATIONS RECEIVED 1. Has “name” ever been given ‘vaccination injections’ in the mid-outer surface of thigh – to prevent him/her from getting DPT (tetanus, whooping cough, diphtheria)? 2. Has “name” ever been given any ‘vaccination drops in the mouth’ to protect him/her from getting polio? 3. Has “name” ever been given ‘vaccination injections’ in the outer part of upper right arm at the age of 6 months or older – to prevent him/her from getting measles within the last three years?								
102	BCG	Birth Polio	OPV1	OPV2	OPV3	DPT+Hep + Hib1	DPT+He p Hib2	DPT+Hep+ Hib3
	PCV1 2	PCV10 3	RV 1	RV 2	MR 1	MR 2	VIT A	VITA

Roles of CHVs in contribution to immunization uptake		
1.	Do you know of CHV assigned to work in your household	Yes1 No2
2.	What is the name of the Community volunteer in your village? (mention community unit)	Name.....
3.	Please describe how they were recruited	Elected by the community1 NGO.....2 Ministry of health3 Others specify.....
4.	Do you remember being visited at your home by the above named CHV at times other than the days of a vaccination campaign?	Yes1 No2 Don't know.....
5.	In the past one month, how many times did your CHV visited you at your home?	None1 Once2 Twice3 More than two.....4
6.	Have you ever heard about immunization?	Yes..... 1 No..... 2
7.	What is your source of information?	Radio.....1 TV.....2 Family.....3 Neighbor.....4 Community Volunteer.....5 Health workers.....7 community leader.....9 Church/mosque.....10
8.	Do you have any suggestion that could be done that would make you more likely to get your child for vaccination	Friendly vaccinator1 Vaccination site with reasonable walking distance2 Availability of all antigens3 Shorter waiting time at the vaccination site.....4
9.	What do you remember your CHV discussing with about child immunization?	Vaccine preventable diseases and their vaccines.....1 Nothing/Don't remember2 Others (specify).....
10.	Has there been a situation in the last one year when your index child was sick/ immunization and needed to be referred to a health facility?	Yes1 No2
11.	If Yes, were referred to health facility to seek health care services including immunization by your CHV?	Yes1 No2

12.	Are you satisfied with CHV services that he/she usually offers to your household?	Yes1 No2
13.	On a scale of 1 – 10 can you indicate your level of satisfaction, 1 being least satisfied and 10 being very satisfied?	_____
14.	What are the biggest challenges faced by CHVs?	Inadequate transport1 Inadequate remuneration2 Lack of motivation 3 Lack of coordination with health facility.....4 Lack of community support5 Lack of supervision 6 Others specify.....

Thank you for your time

**APPENDIX III: KEY INFORMANT INTERVIEW SCHEDULE:
COMMUNITY HEALTH CARE WORKERS (CHEWS)**

SUB-COUNTY NAME: □ □	
COMMUNITY UNIT	
VILLAGE NAME.....	
INTERVENTION NUMBER..... □ □	
CONTROL..... □ □	
NAME OF CHEW GENDER OF CHEW (1=MALE, 2=FEMALE)..... DATE OF INTERVIEW..... NAME OF INTERVIEWER.....	<div style="text-align: right;">..... □ □</div> <div style="text-align: center; font-size: 1.2em;"> □ □ / □ □ / □ □ □ □ </div> <div style="text-align: right;">INTERVIEWER CODE..... □ □</div>

GENERAL

I would like us to talk about contribution of CHVs to child immunization uptake among communities living within the sub county

S no.	Role of CHVs in regard to immunization uptake
1.	<p>Tell me about the CHVs in your community unit.</p> <p>Tell me what their role involves. What are all the things the CHVs do? What are the most important things the CHVs do?</p>
2.	<p>How are CHVs recruited?</p> <p>How are people selected to be CHVs? What is your role in the selection of CHVs?</p> <p>When was the last time CHV was recruited in this community unit?</p>
3.	<p>What training have the CHVs received in regard to immunization?</p>
4.	<p>Tell me about the relationship between CHVs and the people in their villages.</p> <p>How many people know who the CHVs are? What do people think of the CHVs? Do people trust the CHVs?</p>
5.	<p>What skills does someone need to be a good CHV?</p> <p>Is there a difference between CHVs who are women and CHVs who are men? Is there a difference between younger CHVs and older CHVs?</p>
6.	<p>What do CHVs find easy and difficult about immunization?</p> <p>How easy or difficult is it for CHVs to communicate with caregivers?</p>
7.	<p>What would make it easier for CHVs to deliver immunization services in their</p>

	villages?
8.	How often do you communicate with the CHVs in your community unit(s)? How often do you meet in person?
9.	Tell me about the supervision you provide to CHVs. Describe a typical supervision. Where do you meet the CHV? What are your goals when you conduct supervision? What makes supervising CHVs difficult? Are you able to conduct supervision visits as often as you would like? What would make it easier for you to supervise CHVs effectively?
10.	How do you know whether CHV is doing their job well or not? Do the people in the village know whether a CHV is doing their job well or not? What would happen if a CHV wasn't doing their job well? What would you do? What would the community do? What would happen if a CHV stopped working completely?
11.	Tell me about the registers that the CHVs keep. How useful are the registers for the CHVs? How useful are the registers for you as the supervisor?
12.	Has immunization uptake changed since introduction of CHVs in this community unit? <ul style="list-style-type: none"> ▪ Probe for immunization coverage before introduction of CHVs and after ▪ Prober on prevalence of immunizable diseases ▪ Proper on defaulter tracing mechanism
13.	In your view, what can be done to improve CHVs' activities in relation to immunization in this sub county? <ul style="list-style-type: none"> ▪ Kinds of support system available for CHVs to deliver immunization services in this community
14.	Are there any other suggestions that you have that may help improve immunization uptake in this sub county?

Thank you for your time

APPENDIX IV: APPROVAL LETTER FROM DIRECTORATE OF POSTGRADUATE STUDIES



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: directordps@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099
Samuel Kipunaa Lopar,
HNR/G/01-53934/2017,
P.O. Box 190-50100,
KAKAMEGA.

21st February, 2019

Dear Mr. Lopar,

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Masters Proposal entitled: "*Contribution of Community Health Volunteers in Immunization Uptake in Pokot South Sub-County, Kenya* " and appointed the following as supervisors:


- | | |
|---------------------|------------------|
| 1. Prof. John Okoth | - SONMAPS, MMUST |
| 2. Mr. John Arudo | - SONMAPS, MMUST |

You are required to submit through your supervisor(s) progress reports every three months to the Director of Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Nursing & Midwifery Graduate Studies Committee and Chairman, Department of Clinical Nursing and Health Informatics and Graduate Studies Committee. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your master's thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,


SCHOOL OF POSTGRADUATE STUDIES
MASINDE MULIRO UNIVERSITY
OF SCIENCE & TECHNOLOGY

Prof. John Obiri
DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES

APPENDIX V: APPROVAL LETTER FROM INSTITUTIONAL ETHICS COMMITTEE



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
Tel: 056-31375 P. O. Box 190-50100
Fax: 056-30153 Kakamega, Kenya
E-mail: ierc@mmust.ac.ke
Website: www.mmust.ac.ke

Institutional Ethics Review Committee (IERC)

Ref: MMU/COR: 403012 vol2 (9)
Samuel Kipunaa Lopar
Masinde Muliro University of Science and Technology
P.O. Box 190-50100
KAKAMEGA

Date: 28th March, 2019

Dear Mr. Lopar

RE: Contribution of community health volunteers in immunization uptake in Pokot South sub-county, Kenya -MMUST/IERC/24/19

Thank you for submitting your proposal entitled as above for initial review. This is to inform you, that the committee conducted the initial review and approved (with minor changes) the above Referenced application for one year.

This approval is valid from **28th March, 2019 through to 28th March, 2020**. Please note that authorization to conduct this study will automatically expire on **28th March, 2020**. If you plan to continue with data collection or analysis beyond this date please submit an application for continuing approval to the MMUST IERC by **28th Feb, 2020**.

Approval for continuation of the study will be subject to submission and review of an annual report that must reach the MMUST IERC secretariat by **28th Feb, 2020**. You are required to submit any amendments to this protocol and any other information pertinent to human participation in this study to MMUST IERC prior to implementation.

Please note that any unanticipated problems or adverse effects/events resulting from the conduct of this study must be reported to MMUST IERC. Also note that you are required to seek for research permit from **NACOSTI** prior to the initiation of the study.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'Gordon Nguka', is written over a circular stamp.


Dr. Gordon Nguka (PhD)
Chairman, Institutional Ethics Review Committee


Copy to: - The Secretary, National Bio-Ethics Committee
 - Vice Chancellor

APPENDIX VI: AUTHORISED LETTER FROM NACOSTI

THIS IS TO CERTIFY THAT:
MR. SAMUEL KIPUNAA LOPAR
of MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY, 40-30602
ORTUM, has been permitted to conduct
research in Westpokot County
on the topic: CONTRIBUTION OF
COMMUNITY HEALTH VOLUNTEERS IN
IMMUNIZATION UPTAKE IN POKOT
SOUTH SUB- COUNTY, KENYA
for the period ending:
3rd May,2020

Permit No : NACOSTI/P/19/63509/29531
Date Of Issue : 6th May,2019
Fee Recieved :Ksh 1000


Applicant's Signature


Director General
National Commission for Science,
Technology & Innovation

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013


The Grant of Research Licenses is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

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Serial No.A 24485
CONDITIONS: see back page

REPUBLIC OF KENYA



NACOSTI
National Commission for Science, Technology and Innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
TEL: 020 400 7000, 0713 788787, 0735 404245
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APPENDIX VII: MAPS OF KENYA SHOWING LOCATION OF WEST POKOT COUNTY AND THAT OF WEST POKOT SHOWING LOCATION OF POKOT SOUTH SUB-COUNTY, THE STUDY AREA.

