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THE ROLE OF COMMUNITY HEALTH WORKERS IN REDUCING CHILD MORTALITY IN RWANDA: A CASE OF BUSOGO SECTOR (2014 -2019)

A Research project submitted in partial fulfilment of the requirements for the award of a Master's Degree of Arts in Peace Studies and Conflicts Transformation.

By

Francis MUHETO

Reg N^{o}: 220017573

SUPERVISOR:

Dr Celestin HATEGEKIMANA

Musanze, May 2020

DECLARATION OF ORIGINALITY

I, **Francis MUHETO** hereby declare that the content in this thesis is an original work and has not been submitted in any form for any degree to any University. Duly referenced acknowledgements were made to any other information from other sources.

Francis MUHETO

5.1.2020

CERTIFICATION

This is to certify that this thesis entitled "Role of Community health workers (CHWs) in reducing child mortality in Rwanda: A case of Busogo sector" is an original work carried out by Francis MUHETO, under my supervision and guidance and is hereby accepted and recommended for Approval for the Award of the Master's Degree of Arts in Peace Studies and Conflicts Transformation by University of Rwanda.

Dr Celestin HATEGEKIMANA
Supervisor

Signature 

DEDICATION

To

My late Parents who left much earlier

My wife Josine INGABIRE for her moral support and encouragement throughout my study time

My children who missed me during my absence

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LIST OF ABBREVIATIONS AND ACCRONYMS

ASM	Agent de Santé Maternelle
CHSA	Community Health and Social Affairs
CHW	Community Health Worker
CPBF	Community Performance Based Financing
FP	Family Planning
HIV	Human Immuno-deficiency Virus
ICCM	Integrated Childhood Cases Management
LCT	Life Course Theory
MCH	Maternal and Child Health
MOH	Ministry of Health
MDGs	Millennium Development Goals
NCDs	Non-communicable diseases
NGO	Non-Governmental Organizations
NISR	National Institute of Statistics of Rwanda
NMR	Neonatal Mortality Rate
ORS	Oral Rehydration Solution
RBC	Rwanda Biomedical Center
SDGs	Sustainable development goals
TB	Tuberculosis
TBA	Traditional Birth Attendance
USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
WHO	World Health Organization

ABSTRACT

The general objective of this study was to explore the role of Community Health Workers (CHWs) in reducing child mortality in Rwanda. The specific objectives of the study were (1) to explore the role of CHWs in ensuring better health of children in Busogo Sector, (2) to find out the extent to which CHWs are effective in providing services aimed at reducing child mortality in Busogo Sector and (3) to identify the challenges facing CHWs in providing services aimed at reducing child mortality in Busogo Sector. The study adopted a qualitative research design. The target population was composed of 85 individuals composed of CHWs in Busogo Sector, Sector social affairs, CHW supervisors, and executive secretaries of cells and a sample of 48 respondents selected using convenience and purposive sampling techniques. Data were collected using interviews and Focus group discussions (FGDs). Data were analyzed by thematic analysis. Findings showed that CHWs play different roles in bettering child health in Busogo sector by the provision of health promotion and preventive care to pregnant women and children, enhanced uptake of preventive measures like the promotion of a clean home environment and adequate sanitation, diagnosis and treatment of children with non-severe pneumonia and fever and hence reduce the risk of death among children. However, CHWs are constrained by skills gap translated by lack of knowledge on some health related topics, lack of proper supervision, large catchment and coverage area and work overloads and lack of adequate tools and equipment. The study was underpinned by the Life Course Theory and Role development Theory which reflects that care given to children at birth and to their mothers before birth, affect their immediate wellbeing and have an impact on their health and development in later years (Fine et *al*., 2010) as CHWs provide care not only to pregnant women to enable the child get abilities to live off well after birth while the Role Development theory advocate that CHWs' roles were developed and attributed to them to enable them participate in enhancing better health of the population they serve. Hence, the creation of role of CHWs enabled them to provide care to mothers which impact on the wellbeing of children in the later age.

Key words: Community Health Worker, family Planning, Maternal and Child Health, Neonatal Mortality Rate, Traditional Birth Attendance, Ministry of Health, World Health Organization (WHO)

CHAPTER ONE: GENERAL INTRODUCTION

1.0. Introduction

The research topic is entitled: Role of Community Health Workers (CHWs) in reducing child mortality in Rwanda. This chapter provides the background to the study, the research problem under study, general and specific objectives (1) to explore the role of CHWs in ensuring better health of children in Busogo Sector, (2) to find out the extent to which CHWs are effective in providing services aimed at reducing child mortality in Busogo Sector and (3) to identify the challenges facing CHWs in providing services aimed at reducing child mortality in Busogo Sector), research questions, scope of the study and the significance of the study as well as the structure of the study.

1.1. Background to the study

Globally, Community Health Workers (CHWs) are recognized as an important resources in addressing the existing critical shortage of health workers (Lawn *et al*., 2018). Moreover, one approach has been the reinvigoration of comprehensive primary health care, including renewed recognition of the importance of community ownership and expanded use of health extension and community health workers (WHO, 2018). Jones *et al*. (2013b) also believe that CHWs interventions could be essential in preventing maternal and child deaths and programmes involving CHWs have been implemented to curb the rate of child mortality in rural and resource-contained settings.

CHWs are defined as members of communities selected by their community and work within their community's members to deliver culturally suitable health services (Olaniran *et al*., 2017). CHWs are supported by the health system but have no professional training and are usually volunteers or receive a stipend for their work (WHO, 2018). Their role may include provision of preventive, promotive as well as curative services.

CHWs programs have been in place for a number of years since 1980s, through government health programs and other non-governmental initiatives (Breman *et al*., 2011b).CHWs are helping to reduce child mortality, enhance the quality of community life and eliminate some of the major impediments to economic development across the world by bringing healthcare to

mothers and children, and to those suffering from many preventable and treatable diseases (Darmstadt *et al*., 2016).

However, CHWs' tasks changes and varies according to the section where they operate from (social services, health care), the services they deliver to patients/clients (such as advocacy, outreach, education, clinical services), and the profile needed for the position (Kogan & Leary, 2015). In USA, CHWs are a crucial constituent of the health care delivery system and offer the precarious link among the healthcare and human service system and their societies (Ballester, 2015). CHWs increase entree to and rise utilization of main health care, decrease costs of care, enhance quality of care, and decrease health discrepancies.

Evidences from India showed that the neonatal mortality rate (NMR) reduced by an average of 25% for a period of two years CHWs were trained in essential new-born care, maternal care specification and exceptional care of at-risk infants and referral to health services when suitable (Prasad &Muraleedharan, 2017). CHW-based programmes in Guatemala showed the potential to expand health in both maternal and child health, access to family planning and prevention of HIV infection, malaria and tuberculosis (Wangalwa *et al*., 2012).

In Sub-Saharan Africa, CHWs have been fruitful in promoting maternal and child health by preventing mortality in mothers, newborns and children. In Liberia, CHW-based health care for isolated populations was vital for advising mothers on visiting a health facility for prenatal visits and rise coverage of crucial maternal and child health services through improved recruitment, training and supervision (Perry *et al*., 2016). CHWs' responsibility included the provision of combined social case management of childhood illnesses, involving diarrhoea, acute respiratory infection and malaria and maternal and new-born care.

For areas in which maternal immunization against tetanus was not feasible in Kenya measures such as Traditional Birth Attendant (TBA) training for safe and clean delivery and cord care were effective in decreasing perinatal, neonatal, and infant mortality. Child mortality ratio and neonatal mortality rate trends have remained unacceptably high in a decade in Kenya (Wangalwa *et al*., 2012).

In Rwanda, the country's health sector has made extraordinary progress towards improving people's health and wellbeing, particularly among women and children. Rwanda started its community health program in 1995, soon after the genocide against the Tutsi. CHWs were about 12,000 CHWs. At the moment, there was no policy, strategy or functional guidelines on how the Community health program should be put into action (MOH&RBC, 2016). Initially, CHWs focused on health education and facilitated health mobilizations, but with time, their role evolved into a more inclusive community lead initiative.

The annual health statistics by NISR (2016) shows that Rwanda's child mortality ratio decreased "from 1,020 deaths per 100,000 live births in 2000 to 290 deaths per 100,000 live births in 2015", making Rwanda one of the few countries that achieved Millennium Development Goal 5 (To reduce child mortality). To maintain progress in the era of the Sustainable Development Goals (SDGs), Rwanda aims to reduce preventable maternal deaths by strengthening cross-sector involvement in the health system.

Rwanda improved maternal and child health through the engagement of voluntary community health workers (CHWs) programs "established in 1995 aiming at increasing uptake of essential maternal and child clinical services through education of pregnant women, promotion of healthy behaviours, and follow-up and linkages to health services" (Condo *et al*.,2014). In 2007, Government of Rwanda through the Ministry of Health "initiated a reform of the national community health system, which was initially implemented in 1995. CHWs are now required to have a minimum of 6 years of education, and are elected by their communities" (MoH &RBC, 2016). Moreover:

> "There are currently 58,445 CHWs in Rwanda, comprising 4 CHWs per village (Ntirenganya, 2019). Each village had a pair of general CHWs (called a binôme) who were responsible for community health, nutrition, and HIV/AIDS prevention and a maternal health worker (referred to as an Animatrice de Santé Maternelle (ASM)), who manages infant, and pre and postnatal maternity care. Each village had a CHW in charge of social affairs (CHSA) dedicated to addressing the well-being of individuals and the community" (Condo *et al*., 2014)

Coming back to my case study, with reference to Ntizimira *et al*. (2015), Busogo sector has 4 Cells, namely Kavumu, Nyagisozi, Gisesero and Sahara and 16 villages. There are 4 CHWs in each village. According to Plecher (2020), in Busogo sector, child mortality rate sharply

decreased from 69 deaths per 1,000 live births in 2005 to 30 deaths in 1,000 live births in 2018 even though it is above the national average.

1.2. Statement of the problem

Rwanda has been on trends of reducing child mortality, with the highest reduction in East Africa (United Nations, 2019). The infant mortality rate has sharply decreased "from 86 deaths per 1,000 live births in 2005 to 32 deaths per 1,000 live births in 2018". The child mortality rate also experienced a reduction "from 103 deaths per 1,000 live births in 2005 to 50 deaths per 1,000 live births in 2018. Moreover, Rwanda has experienced large reductions in the neonatal mortality rate, with an average annual rate of reduction of more than 3 per cent from 1990 to 2018.

Reductions in child mortality rate in the country are attributed to Community Health Workers (CHW) systems introduced in Rwandan health system since 1995 (Gilmore & McAuliffe, 2018). MoH (2016) views that CHWs constitute an effective mechanism towards the mitigation interventions aimed at reducing child mortality as they already play a significant role in preventing under-five deaths by malaria prevention, health education, breastfeeding promotion, essential new-born care and psychosocial support of pregnant and lactating women.

However, the country still faces important and potential problems as related to child mortality as illustrated by the child mortality rate which stands at 27 deaths per 1, 000 live births in 2018 (Plecher, 2020). National institute of statistics of Rwanda (NISR) *et al*. (2018) provided that "the main causes of under-5 deaths include diarrhoea, pneumonia and HIV/AIDS, among others. Moreover, population in remote areas, or those particularly affected by financial insufficiency are most at risk". Specifically in Busogo sector, "child mortality rate sharply decreased from 69 deaths per 1,000 live births in 2005 to 30 deaths in 1,000 live births in 2018" even though it is above the national average (Plecher, 2020). Hence, the study aims to qualitatively explore the role of CHWs on the reduction in child mortality in Busogo sector and identify challenges faced by CHWs with a view to provide recommendations for improving their effectiveness in reducing child mortality in Rwanda.

1.3. Research questions

The study aimed at finding answers to the following research questions:

1. What is the role of CHWs in ensuring better health of children in Busogo Sector?
2. To what extent CHWs are effective in providing services aimed at reducing child mortality in Busogo Sector?
3. What are the challenges facing CHWs in providing services aimed at reducing child mortality in Busogo Sector?

1.4. Objectives of the study

The study was guided by both general and specific objectives. These objectives are detailed below.

1.4.1. General objective

The general objective is to explore the role of Community Health Workers (CHWs) in reducing child mortality in Rwanda

1.4.2. Specific objectives

The study was guided by the following specific objectives:

1. To explore the role of CHWs in ensuring better health of children in Busogo Sector
2. To find out the extent to which CHWs are effective in providing services aimed at reducing child mortality in Busogo Sector
3. To identify the challenges facing CHWs in providing services aimed at reducing child mortality in Busogo Sector

1.5. Scope of the study

Every scientific work must be limited in time, content and space. The following section presents the study scope and the rationale of their choice.

1.5.1. Time scope

This research covers the period of 6 years from 2014-2019. The choice of this period is twofold: First, the period is chosen to get up-to date information about the research variables. Second, the period provides enough evidence to establish the trend in the study variables and make comparison over time.

1.5.2. Geographical scope

This research was conducted in Busogo sector in Musanze district, Northern Province. The choice of Busogo Sector is twofold: First, Busogo Sector is one of the sectors of Musanze district which is near the researcher's premises. Hence, it is believed it is ideal to take it as a representative of in this study. Second, Busogo Sector is among the large and densely populated sectors in Musanze district. This illustrate that there is a high probability of child-mortality and hence needed data are easily available and accessible.

1.5.3. Content scope

This research is limited in content on the role of community health workers in reducing child mortality in Rwanda, case of Busogo sector in Musanze district, Northern province. The content scope highlights that the role played by CHWs are conceptualized as independent variables while the reduction in child mortality was measured by reduced child deaths, reduced infant deaths and improved child health and are conceptualized as dependent variable.

1.6. Significance of the Study

The study is expected to benefit different groups of stakeholders. Hence, the following section presents the interest to the researcher, to the academicians and scientists as well as the society as whole.

1.6.1. To the Researcher

This study is expected to help the researcher acquire a master's degree in Peace and Conflict transformation from the University of Rwanda and enable the researcher to improve knowledge and competencies in research skills that would be used in other fields of work. Moreover, the

research will enable the researcher to expand his knowledge on the role of CHWs in reducing child mortality in Rwanda.

1.6.2. To Academicians and scientists

The research furnishes relevant information regarding the role of CHWs in reducing child mortality to the academicians and scientists which can be used for references in future researches. The research will also identify the gap in the existing literature and make suggestions for future students who want to undertake researches in the same academic field.

1.6.3. To the Society

To CHWs: CHWs will benefit from the findings of this study as their working conditions and environments concerns were highlighted for further action by the concerned authorities.

To the Ministry of health (MoH): MoH will utilize the study findings in identifying the best way of promoting child health care through involvement of CHWs. This will end up in reducing child mortality rate and thereby ensuring the achievement of MDGs. It is also expected that the study will be of great significance to the national government in developing policies relating to community access to better, efficient and quality health services.

1.7. Structure of the study

This research was divided into five chapters as follow:

Chapter one provides the general introduction to the study and an insight to the reader about the content and the rationale of the study. Specifically, the first chapter gives the general overview of the research background, the problem under investigation and objective of the study, research questions, scope of the study, significance of the study and it ends with study structure.

Chapter two entails the literature review and provide a theoretical linkage between the research at hand and the findings of previous researches that were undertaken in the same domain across the world. Specifically, the chapter details the theoretical review, the empirical review and the conceptual framework as well as the research gap.

Chapter three details the methodological approaches and tools that are used to find answers to the stated research questions. Specifically, the chapter details the research design, description of research area, study population, sample design and sample size, data collection methods and instruments, sources of data, data analysis methods, reliability and validity of the research instruments, limitations and mitigation strategies and ethical considerations.

Chapter four presents the study findings on CHWs and reduction in child mortality in Busogo Sector. Specifically, the chapter details the demographic characteristics of the respondents, findings based on the study objectives and discussion with relevance to the previous researches.

Finally, chapter five details the conclusion and recommendation as well as the recommendations for further researches.

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

This chapter presents the review of related literature on the "role of CHWs in reducing child mortality. The chapter aims at presenting the overall overview of others' work in the field of CHWs and child mortality across the globe. The reviewed literature starts by looking at the definition of key concepts, a review of study variables, the theoretical review and the empirical review, research gap and the conceptual framework.

2.1. Definition of the key concepts

This section provides the definition of key concepts in the research topic and includes CHW, child mortality and mortality rate. Defining these concepts enabled the researcher and the readers to fully understand the operational meaning of the topic under study.

2.1.1. Community Health Workers (CHWs)

CHWs are defined as members of communities who are chosen by their community and work within their community's members to provide culturally appropriate health services (Olaniran *et al*., 2017). CHWs are supported by the health system but have no professional training and are usually volunteers or receive a stipend for their work (WHO, 2018). Their role may include provision of preventive, promotive as well as curative services.

2.1.2. Child mortality

Child mortality represents the number of children dying before reaching age of 5 years in a given time frame (usually a year) and in a precise geographical area (usually a country) (WHO, 2018).

> "Within the life-course, the period of life before adulthood is divided into three age subgroups, based on epidemiology and health-care needs: (1) the first five years (under-five children), (2) the next five years (older children), and (3) the second decade of life (adolescents). In order to address the specific health challenges and needs of young children more effectively, the first five years of life are further subdivided into the neonatal period (the first 28 days of life), infancy (the first year of life) and pre-school years (1-5 years)".

2.1.3. Mortality rate

“Child mortality rate, also referred as under-five mortality rate', refers to the probability of dying between birth and exactly five years of age expressed per 1,000 live births” (WHO, 2018). Child mortality rate encompasses neonatal mortality rate and infant mortality rate (the probability of death in the first year of life)

2.2. Review of the literature

This section presents the review of the existing literatures on the study variables and outlines the context of CHWs program implementation, CHWs financing, CHWs compensations and perdiem and the challenges facing CHWs. This enables the researcher and the readers to fully understand the concepts used in the study.

2.2.1. Context of CHWs

According to UNICEF (2004), “CHWs involvement in rendering “certain basic health services to the communities from which they come has a 50-year history. CHWs date back on declaration of Alma-Ata in 1978s, which identified CHWs as one the cornerstones of the comprehensive primary health care”.

With the economic recession of the 1980s:

> “CHW programs were the first to fall victim to new economic stringencies and most large-scale, national programs collapsed (although numerous nongovernmental organizations (NGOs) and faith-based organizations (FBOs) continued to invest in mostly small, community-based health care). The collapse was further facilitated by the fact that many large-scale programs had suffered from a number of conceptual and implementation problems” (Gilson *et al.,* 2009) such as “unrealistic expectations, poor initial planning, problems of sustainability, and the difficulties of maintaining quality”.

However, despite advances in reaching distant communities, there are numerous ways for progress and growth of CHW programs, particularly related to the expansion of new tools and evidence-based policy to «guide global health policy and implementation»:

> This is where the One Million Community Health Workers (1mCHW) mobilization comes into play. By coordinating existing CHW programs with African governments, and making it clear where the core interests of local and global organizations fit into national frameworks, 1mCHW

> is developing the tools necessary to guide CHW policies. Moreover, 1mCHW is developing an «Operations Room» an online dashboard to provide comprehensive information about CHW activities on the ground. The «Operations Room» will chart progress in different countries and contain the compiled evidence demanded by the article's authors to deepen our understanding of CHW programs and of the most effective means of implementation (Gilson *et al.,* 2009).

USAID (2010) identified that:

> "the key components were identified as central to the design and implementation of functional and sustainable CHW programs: defined job description with specific tasks or responsibilities for volunteers, recognition and involvement by local and national government, Community involvement (especially in recruitment and selection, by making use of existing social structures, consider cultural appropriateness, address needs of community, etc.), resource availability (funding, equipment, supplies, job aids, etc.)".

Today's renewed emphasis on the practice of CHWs has its basis mainly in a acknowledgment that service needs, predominantly in distant and disadvantaged communities, are not met by current health services, particularly given enlarged needs created by HIV/AIDS in different countries and deteriorating health worker shortages. CHWs are used mostly to render basic, commonly curative health services within homes and communities and to help health professionals with their responsibilities.

2.2.1.1. CHWs in Rwanda

Before 1994, Health sector in Rwanda was supported by Bamako Initiative and sponsored by UNICEF and WHO. Decentralization of the health management system to province and district levels showed progress but was disrupted by the 1994 genocide against the Tutsi, and the later crippled the healthcare system with completely destroyed health system, lacking resources, having lost 75% of its human capital and "almost all its health facilities and the collapse of supply chains for drugs and consumables handicapped the country for years while there were thousands of injured and displaced people" (Basinga *et al.*, 2008).

Rwanda's under-5 mortality rate was the highest in the world; life expectancy at birth was dramatically low, whereby a baby born in 1994 could expect to live only until the age of 26 in the aftermath of the genocide. Moreover, there were an exponential shortage of medical

professionals and health workers. Most of "health workers had either been killed or fled the country; many who remained had been complicit in the genocide, and trust in physicians and nurses was frayed" (Hall, 2016).

Rwanda has developed early strategies to upgrading the health system which were focused towards ready access and accountability and started its community health program in 1995 after the genocide.

> "There are four main objectives of the program: (1) strengthen the capacity of decentralized structures to allow community health service delivery; (2) strengthen the participation of community members in community health activities; (3) strengthen CHW motivation through CPBF to improve health service delivery; and (4) strengthen coordination of community health services at the central, district, health center, and community levels" (Hall, 2016).

When the MOH endorsed the program in 1995, CHWs programs aimed at responding to the shortage of health staff after the death of many medical personnel and there were approximately 12,000 CHWs. By 2005, the program had grown to over 45,000 CHWs. From 2005, after the decentralization policy had been implemented nationally, the MOH improved efforts to train and deliver supplies to CHWs to provide Maternal and Child Health (MCH) services.

> "The program has since grown to include an integrated service package that includes malnutrition screening, treatment of TB patients with DOT, prevention of NCDs, community-based provision of contraceptives, and promotion of healthy behaviours and practices including hygiene, sanitation, and family gardens" (Binagwaho *et al.*, 2013).

Notable improvements have been achieved in maternal health:

> "69% of deliveries are now assisted by a skilled provider, up from 39% in 2005; child mortality has declined from one of the highest in the world (1,071 deaths per 100,000 live births) in 2000 to 27 in 2018; and contraceptive use has increased from 10% in 2000 to 45% in 2018. In addition, there has been a vast improvement in the nutritional status of children: between 2005 and 2010, the percentage of children who were underweight declined from 18% to 11% and the percentage of children who were stunted declined from 51% to 44%" (Binagwaho *et al.*, 2013).

Infectious diseases, mainly malaria, ARIs, and intestinal parasites—remain the primary cause of outpatient morbidity.

2.2.1.2. CHWs program implementation

Each village in Rwanda, there is one maternal health CHW (ASM) and two multidisciplinary CHWs (*binômes,* or the man and woman working as a pair). CHWs are full-time, voluntary workers who play a very key role in extending services to Rwanda's village communities. The CHWs are supervised most directly by the cell coordinator and the in- charge of community services at the catchment-area health center. CHWs now use Rapid SMS to "submit reports and communicate alerts to the district level and to hospitals or health centers regarding any maternal or infant deaths, referrals, newly identified pregnant women, and newborns in the community".

ASMs have been trained to identify pregnant women, make regular follow-ups during and after pregnancy, and encourage deliveries in health facilities where skilled health workers are available. ASM also screens children for malnutrition, provides contraceptives (pills, injectables, cycle beads, and condoms), promotes prevention of NCDs through healthier lifestyles, and carries out household visits (MoH, 2011).

Between 2008 and 2011, Rwanda introduced iCCM of childhood illness (for childhood pneumonia, diarrhoea, and malaria) nationwide. *Binômes* were trained and equipped to provide iCCM (including treatment with antibiotics, zinc, and anti-malarials), to detect cases of acute illness in need of referral, and to submit monthly reports. In 2010, the Government of Rwanda introduced Family planning (FP) as a component of the national community health policy, and CHWs were trained not only to counsel but also to provide contraceptive methods including pills, injectables, cycle beads (for use with natural FP), and condoms. This program was first piloted in three districts and later scaled nationwide.

Additionally, CHWs must be part of the community in which they live as suggested by Witmer *et al.* (2015):

> "CHWs should be members if the community they work, selected by the communities, should be answerable to the communities for their activities and should be supported by the health system but not necessarily as part of its organization. CHWs must be able to read and write and be between the ages of 20 and 50 years".

Bhattacharrya *et al*. (2011) prompted that literate or highly educated CHWs tend to be younger and Brown *et al*. (2016) stressed that:

> "CHWs do not need to be highly educated by only needs to be able to read and write as high educational qualification have opportunities for alternative employments and therefore migrate to find these jobs. CHW also must be willing to volunteer and be considered by their peers to be honest, reliable and trustworthy".

2.2.1.3. CHWs financing

Government of Rwanda have instituted a new mechanism to boost quality and quantity of services. This consists of essentially attaching monetary incentives to performance contracts and is known as Performance-Based Financing (PBF). PBF establishes a direct link between service delivery, results and payment. GoR buys health outputs by supplementing health workers' salaries on a performance basis and health facilities also receive additional money on the basis of institutional performance. Moreover, PBF establishes a set of indicators covering quantitative and qualitative aspects of health service delivery against which performance is measured (Basing, 2009).

Performance-Based Financing systems are being designed for the national Community Based Health Insurance system. A national model for Community Performance-Based Financing has been developed, using a broad consultative process. The model is based on experience gained during the implementation of the health center and hospital Performance-Based Financing models, and benefits from a close fit with these models. The purpose of this Community Performance-Based Financing (c-PBF) Guide is to document the tools and processes used in Community PBF. This guide is primarily meant as a background document for trainers, sector PBF Steering Committee members, and the CHWs cooperatives. However, it will be used by all working in the Rwandan Health System (Basinga, 2009).

PBF is not for individual performance remuneration. The purpose of the incentive is for community health workers to increase the capital of their cooperatives. The cooperatives on their turn will then start income generating activities to the benefit of the individual members. The remuneration of individual community health workers will be from the profit of the cooperative activities (MOH, 2011).

PBF provides bonus payments to providers for improvements in performance measured by indicators of specific types of utilization (e.g. prenatal care) and quality of care. While the approach promises to improve health system performance, there is little rigorous evidence of its effectiveness, especially in low-income settings. Motivations of voluntary CHWs, in terms of their reasons for being involved in their work and the benefits they expected, were strongly characterized by their desire to promote health in their community including themselves and their families. Steps taken to enhance their efficacy in this regard will therefore have a positive impact on their motivation levels (Stekelenburg *et al.*, 2003). Volunteers were also strongly motivated by the responsibility and acceptance they received from the community, as well as the recognition, respect, credibility and political status they have gained. Conversely, they were sometimes discouraged by misunderstanding of their voluntary role on the part of the community.

2.2.1.4. Compensating CHWs and Perdiem

This an amount most of the time paid by partners to strengthen the self-motivation based on monthly home visits, daily accompaniment and key maternal health activities, timely completion of a monthly report form and participation at monthly training. This perdiem is between10 to 20$ depending on performance of community health workers qualitatively and quantitatively (MOH, 2011). Compensating CHWs has a number of important benefits for both the health care program and the communities it serves. First payment for meaningful work provides a needed income for those in resource limited setting.

Secondly, compensating CHWs can strengthen their roles as an essential member of the clinical team, thereby creating a stronger bridge between the communities to the clinic or hospital based setting. Third, payment particularly when it is a fair wage and paid on time can serve as a source of motivation for CHWs in performing their work reliably and effectively. Fourth, payment can also increase the amount of time CHWs are available on a weekly basis, can prevent turnover, and can promote program consistency. Finally, investment in CHWs can potentially increase uptake in medical services, promoting adherence to HIV and TB medication and resulting in long term improved health outcomes in the community (MOH, 2011).

Compensation structures will vary by country and program. Find out whether there are labour regulations that affect compensation in addition to any minimum or maximum wage requirements or other regulations, when budgeting for the CHWs program. Some programs either choose to or are mandated to cap salaries at the same level as those paid to schoolteachers or other civil servants. In some contexts, CHWs are paid a baseline salary and are then given an incentive bonus for each sick community member they see. In other places, CHWs receive compensation through a cooperative, whose members pool their funds to support it and equal control over its operation. Additionally many systems involve performance based financing, in which CHWs receive compensation following the completion of certain responsibilities such as monthly home visits or the accurate collection of household data (MOH, 2011).

2.2.1.5. Challenges facing CHWs

Health system support may also involve access to supplies. Unreliable access to necessary supplies can threaten the implementation of relatively simple interventions and lead to loss of respect in the community for the CHW and the health system (Morgan & Eichler, 2011). Important considerations include the extent to which certain supplies, such as condoms, can be stored over long periods of time and whether supplies, such as vaccines, require specific storage conditions.

Health system support may be required to ensure a well-functioning referral chain. A number of tasks, particularly related to pregnancy and childbirth care, are given to CHWs on the condition that they are trained to recognize symptoms or danger signs and refer patients to the appropriate health facilities. Referral tasks require that the nearest health facility to be sufficiently staffed and equipped, that CHWs have practical ways of contacting facility staff (e.g., by mobile phone, a runner), that a trustful and collaborative relationship exists between the CHWs and the facility staff, and that the beneficiaries themselves are willing to travel to these facilities for health care and have the funds and the means of transport to do so. However, these factors are not always in place. Both CHWs and recipients may have poor relationships with facility staff or may lack the funds or practical means to contact them.

Moreover, facilities are often under-resourced and under-staffed, and facility staff may feel that CHW programs will increase their workload as a result of supervision requirements or an increase in referrals, or facility staff may fear a loss of authority. Health professionals may be more likely to accept CHW tasks if boundaries are clear and if they feel that the CHWs make sense in their setting (e.g., by easing some of their own busy workload). For these reasons, health professionals and their organizations need to be involved when deciding on the roles and tasks of the CHW (Curtale *et al.*, 2015).

For Rwanda, due to the rising number of CHWs and an increase in their scope and tasks,

> "Government of Rwanda faces a constant battle to increase the capacity of CHWs and to provide them with the equipment and supplies they need. Refresher trainings are too few and provision of essential equipment is delayed due to insufficient financial resources. Field supervision of CHWs and the transfer of skills and knowledge to the communities to foster ownership and enhance sustainability is a continuing challenge" (MoH, 2011).

"Success of CHW programs and the quality of health care services provided by CHWs hinges on regular and reliable support and supervision" (Bhattacharyya *et al.*, 2011). However,

> "Supervision is often among the weakest links in CHW programs and receives neither human nor financial support needed to fully conduct and sustain the necessary supervisory activities. Full responsibilities for the supervision of facility and community health workers has been shifted to area and district levels, often without providing the training and resources needed to undertake supervisory functions. However, Curtale *et al.* (2015) acknowledged that continuous supervision diminishes the sense of isolation that CHVs usually experience in the field and helps to sustain their interest and motivation to do their assigned tasks" (Stinson *et al*., 2008).

Moreover, health system support may be of a regulatory nature. Regulations may need to be changed to reflect CHWs' scope of practice to allow CHWs to perform certain tasks and to receive legal protection should interventions cause harm. Many countries had not revised their national regulations to incorporate additional professional roles and responsibilities that negatively impacted the long-term sustainability of their roles (Rusa *et al*., 2009).

Similarly, a lack of regulatory support may impede institutionalization of changes, which may also be an issue for CHW programs. CHWs in Rwanda face similar challenges related to:

> "(1) the financial and administrative difficulties in supporting and continuing to build the capacity of CHWs as they increase in number and as the scope of their work expands; (2) the challenge of supervising and effectively equipping CHWs to perform their duties and (3) low community participation in the health sector and the strong influence of traditional beliefs and traditional medicines" (MoH, 2011).

2.3. Theoretical framework

The study is underpinned by Life course theory and Role development Theory. This theory is believed to model and ground the current study.

2.3.1. Life course theory

Life course theory (LCT) was proposed by Elder and Johnson (2003) as "a framework that explains health and disease across populations and over time. LCT is a powerful way to conceptualize health and health disparities to guide improvements in health". The theory suggests that "health is produced across the life span but childhood is a critical period and requires a need to change priorities and paradigms in our healthcare delivery system" (Fine et *al*., 2010).

Life course theory provides a framework for understanding how children's health and environmental exposures are connected to the development of disorders, disability and deaths among adults and explains:

> "Health and disease patterns, particularly health disparities across populations and over time which focusing on differences in health patterns one disease or condition at a time (Elder & Johnson, 2003). LCT also points to broad social, economic and environmental factors as underlying causes of persistent inequalities in health for a wide range of diseases and conditions across population groups. LCT posits that individuals live within the context of their family, community and physical and social environment. Hence, to address the health needs of the whole person, family and community, it is critical to involve community members in setting priorities and developing approaches" (Elder & Johnson, 2003).

Based on this theory and relating to health care, the theory recognizes the continuum from birth through childhood, adolescence and adulthood. This approach reflects the principle that care given to children at birth, or even that given to their mothers prior to their birth, will affect their immediate wellbeing and will have an impact on their health and development in later years. Moreover, CHWs are part of the community and since the mission of LCT include improving and protecting the health of the population, eliminating health disparities and promoting health equity across population groups and building healthy communities, Hence, the theory is relevant to this study as it provides the opportunity to improve the health and wellbeing of mothers and children and CHWs involvement as members of the communities enables to reduce the disease patterns among children. Moreover, resources devoted to modifying health risks in early life can help reduce health disparities for the children over their life span.

2.3.2. Role development theory

Role development theory was developed by O'Brien *et al.* (2009). This theory suggests that "professional roles define a set of work responsibilities and create performance limits where no legal definition exists" (Simpson, 2008). Moreover, the individual characteristics such as gender, educational background, and language proficiency impose limits placed on those roles. Hence, "unclear roles can have a substantial impact on the resulting work, potentially causing duplication of effort, difficult work environments, and inefficient operations" (Simpson, 2008).

Linked to CHWs, an unclear role definition and attribution to them may compromise the quality of patient care, resulting in poor outcomes and wasted programmatic expenditures. To clarify roles, relevant power structures establish rules or policies, such as job descriptions.

O'Brien *et al*. (2009) are of the view that "as roles develop greater complexity and pose substantial potential risk to members of society, legal and regulatory mechanisms protect both society at large and the person fulfilling a formal role" (O'Brien *et al*. 2009). Role development theory also provides insight into how to create new formal roles, such as CHWs, in the healthcare system. Creating a new formal role requires that the developer identify a need, determine the selection criteria and training requirements, establish performance guidelines and outline the evaluation process. Failure to do so creates the risk of poor role clarity and inconsistent role performance, with a resulting threat to the quality of work that is produced.

This theory is more relevant to this study, as roles such as community mobilization, patients referrals, advocacy and advisory services were created to CHWS to enable them participate in enhancing better health and it is assumed that the MoH guidelines enable CHWs to perform their roles and have established performance guidelines and hence reducing child mortality rate in Rwanda**.**

2.4. Empirical review

Many studies were undertaken in the area of CHWs and child mortality across the globe. For instance, Marura (2015) examined "the role of community health workers in enhancing child health care program in Mombasa County in Kenya". The purpose of the study was to investigate various roles that community health workers play in enhancing child healthcare in Mombasa County, Mombasa County, Kenya. The population for the study included 550 households and 50 community health workers in Mombasa County. The sample size for the study was calculated using Role (2010) formula whereby 225 household (mothers who have infants aged less than 6 months) and 50 CHWs were sampled using systematic random sampling technique. The study used structured questionnaires and interview schedule as instruments for data collection. Data collected from the field was analyzed using quantitative and qualitative research methods. Quantitative data was analyzed using descriptive; frequencies, percent, mean and standard deviation and inferential statistics; chi square with the help of SPSS computer software (Version 20.0). Content analysis method was used to analyze qualitative data from interview with CHWs. Findings of the analysis are presented using tables, pie charts, graphs as well as narrations for qualitative data. The results of the study showed that CHWs played a significant role ($p<0.05$) in enhancing child healthcare in community unit. However, only 50% of the population received CHWs services on MHC. The study found out that MHC educational materials, materials, drugs, health facilities and FP supplies were inadequate according to CHWs and respondents opinion. The study recommends training for CHWs, governmental support towards availing preventive materials and supplies, committed leadership and introduction of mobile clinics to reduce the distance between households and health facilities. This will end up reducing mortality rates in the community unit.

Mpunga (2013) examined "the role of community health workers (CHW) in delivering postnatal care (PNC) services to recent delivery mothers in Kilosa district, Tanzania. The general objective of the study was to examine the roles of Community Health Workers in Delivering Postnatal Care Services to Recent Delivery Mothers". Data were collected by using semi-structured interview and questionnaire as a methods of data collection, then purposive, convenience and snowball sampling techniques were used in recruiting respondents in this study, qualitative data were analyzed through thematic analysis approach**.** This analysis as a descriptive method used to objectively and systematically look for meanings and relationships of variables and concepts within samples of collected data.

Mpunga (2013)'s study revealed that CHW has a great role to play in delivering postnatal care services at the village level despite of the barriers they are facing, also study identifies factors leads to the utilization and non-utilizations of the postnatal care services to the women in Kilosa District among of the factors hinders utilization of postnatal are distances from the facility, lack of the knowledge about the services and some few community seems the services like has no important. Moreover study revealed strategies in delivering postnatal care services in rural areas, therefore in order to improve postnatal services this study recommends that government should locate health services as close as possible to the community where the people live, "this could be done by training more community health workers who serve as the critical link between communities and post them to the community level" (Wilford *et al*. 2018)

Wilford *et al*. (2018) explored "the care provided to mothers and children by community health workers in South Africa: missed opportunities to provide comprehensive care". The study adopted a qualitative study design using observations and in-depth interviews to explore the content of household interactions, and experiences and perceptions of mothers and CHWs. Fifteen CHWs and 30 mothers/pregnant women were purposively selected in three rural districts of KwaZulu-Natal, SA. CHW household visits to mothers were observed and field notes taken, followed by in-depth interviews with mothers and CHWs. Observations and interviews were audio-recorded. We performed thematic analysis on transcribed discussions, and content analysis on observational data.

The study found that CHWs provided appropriate and correct health information but there were important gaps in the content provided. Mothers expressed satisfaction with CHW visits and appreciation that CHWs understood their life experiences and therefore provided advice and support that was relevant and accessible. CHWs expressed concern that they did not have the knowledge required to undertake all activities in the household, and requested training and support from supervisors during household visits. The study concluded that key building blocks for a successful CHW programme are in place to provide services for mothers and children in households but further training and supervision is required if the gaps in CHW knowledge and skills are to be filled.

Okuga *et al*. (2015) undertook a study "Engaging community health workers in maternal and new-born care in eastern Uganda. The objective of the study was to examine the perceptions of community members and experiences of CHWs around promoting maternal and new-born care practices", and the self-identified factors that influence the performance of CHWs so as to inform future study design and programme implementation. Data were collected using in-depth interviews with six local council leaders, ten health workers/CHW supervisors, and eight mothers. We conducted four focus group discussions with CHWs. Respondents included 14 urban and 18 rural CHWs. Qualitative data were analysed using manifest content analysis methods. Findings showed that CHWs were highly appreciated in the community and seen as important contributors to maternal and new-born health at grassroots level. Factors that positively influence CHWs included being selected by and trained in the community; being trained in problem-solving skills; being deployed immediately after training with participation of local leaders; frequent supervision; and having a strengthened and responsive supply of services to which families can be referred. CHWs "made use of social networks to identify pregnant and newly delivered women, and were able to target men and the wider family during health education activities. Intrinsic motivators (e.g. community appreciation and the prestige of being 'a doctor'), monetary (such as a small transport allowance)" (Okuga *et al*. 2015), and material incentives (e.g. bicycles, bags) were also important to varying degrees. The study concluded that there is a continued role for CHWs in improving maternal and new-born care and linking families with health services. However, the process for building CHW programmes needs to be adapted to the local setting, including the process of training, deployment, supervision, and motivation within the context of a responsive and available health system.

Adam *et al*. (2014) studied "Improving Maternal and Newborn Health: Effectiveness of a Community Health Worker Program in Rural Kenya". This study examines the effectiveness of a community health worker project conducted in rural Kenya that sought to promote improved knowledge of maternal new-born health and to increase deliveries under skilled attendance. The study utilized a quasi-experimental non-equivalent design that examined relevant demographic items and knowledge about maternal and new-born health combined with a comprehensive retrospective birth history of women's children using oral interviews of women who were exposed to health messages delivered by CHWs and those who were not exposed. The project trained CHWs in three geographically distinct areas. Findings showed that the mean knowledge scores were higher in those women who reported being exposed to the health messages from CHWs.

> "The number of women delivering under skilled attendance was higher for those mothers who reported exposure to one or more health messages, compared to those who did not. The study concluded that the delivery of health messages by CHWs increased knowledge of maternal and newborn care among women in the local community and encouraged deliveries under skilled attendance" (Adam *et al*. 2014)

2.5. Research gap

Several studies on CHWs were undertaken locally and regionally. For instance: Marura (2015) examined the role of community health workers in enhancing child health care program in Mombasa County in Kenya. This study was used quantitative methods of research, Mpunga (2013)' study focused on "the delivery postnatal care (PNC) services to recent delivery mothers in Tanzania and used a mixed research approach of both qualitative and quantitative methods". Wilford *et al*. (2018) explored the care provided to mothers and children by community health workers in South Africa by quantitative methods. Locally, Condo *et al*. (2014) qualitatively explored clients and provider perspectives on CHWs in Rwanda. This study did not specifically identify the role of CHWs. However, all these studies were undertaken elsewhere and covered large areas with small sample size. Moreover, these studies have different focus and lack a special emphasize on the role of CHWs in reducing child mortality. Hence, there is a gap in the literature on this. Hence, this study attempts to explore the role of CHWs in reducing child mortality in Rwanda and fill this knowledge gap in the literature.

2.6. Conceptual framework

This conceptual framework is made is made up with the following variables.

2.5.1. Independent variables

Independent variables are those variables that are manipulated to examine changes on the dependent variables. From the current study, the independent variables are "provision of educational services, provision of preventive materials, referral services and social support and advocacy". These variables are the main services that are offered by CHWs in a way of reducing child mortality.

2.5.2. Dependent variables

Dependent variables are those variables that change when the independent variable is manipulated. For the purpose of this study, the dependent variables include reduced infant mortality, reduced child mortality and improved well-being of child under five years.

2.5.3. Intervening variables

Intervening variables also referred to as moderating variables are those variables that together with independent variables affect the dependent variables but are out of the control of one individuals or institution. For this study, these variables include government regulations and guidelines as well as level of community cohesion.

2.7. Chapter conclusion

This chapter provided the review of the existing literatures on CHWs and their role in reducing child mortality across the globe, Rwanda inclusive. The content provided the theoretical review, whereby the role development theory was adopted in this study, the empirical review, whereby different empirical studies were presented on the role and Role of CHWs in reducing child mortality, and the chapter provided a brief review on the study variables and conceptual framework of the study. Finally, the chapter provided the identified research gap.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0. Introduction

This section provides methodologies used by the researcher for data collection, analysis, presentation and interpretation. The chapter precisely presents the research design, description of the study, study population, sampling design (sample size and sampling techniques), data collection methods and instruments, data analysis reliability and validity of the research instruments, study limitations and ethical considerations

3.1. Research design

Gill and Johnson (2012) defined a research design as chosen plan for achieving a particular study objectives. For the purpose of this study, descriptive survey design was used to describe the characteristics or variables in a population by obtaining information on beliefs, variables, or attitudes reported on a survey. Moreover, descriptive design sought to be ideal for understanding and measuring the beliefs and attitudes of a large population about the circumstances that are happening in their community (Babbie, 2011). Hence, descriptive survey design was chosen because it was suitable in getting detailed descriptive information from the respondents and facilitated the generalizability of research findings to other community health units outside Busogo Sector. Since the study is qualitative in nature, the study used a variety of methods to develop a deep understandings of how people in the community perceive their social realities and in consequence, how they act within the social world.

3.2. Description of the study area

Busogo Sector is one of the 15 sectors of Musanze district. Busogo sector is located at the north-western frontier of Musanze district to Nyabihu district. Its population estimates are 21,512 based on the recent NISR estimates (NISR, 2014). Busogo sector has 4 Cells, namely Kavumu, Nyagisozi, Gisesero and Sahara and 16 villages.

3.3. Target population

According to Ghaglione (2006):

> "Population is defined as a group or a category of human being, animals and other things that have one or more characteristics in common as the target population on the universe. According to Kombo and Tromp (2006), a population is an especially described or set of people, organizations, segments, events, social occasion of things or families that are being inspected entirety up the results" (Ghaglione ,2006)

For the purpose of this study, the target population is composed of 132 individuals composed of 64 CHWs and 3 key informants in the health system (Sector social affairs, CHW supervisors) and 4 key informants outside the health system (Executive secretaries of cells), 26 pregnant women and 39 nursing women was taken as the target population for this study.

3.4. Sample design

Berg (2009) defined sampling as the process involving the selection of a finite number of elements from a given population of consideration. Hence, the following section provides the sample size and sampling techniques used in this study.

3.4.1. Sample size

Before a sample is taken, the researcher has to decide on the number of characters to take part in the study. The researcher must decide the sample size that would represent the entire population and the sample size opts to be statistically significant to provide sufficient information. According to Justus and Bute (2001), a sample is a subset of the total number of elements in a population of interest.

Mugenda and Mugenda (2003) stated that in descriptive studies, 10-50% of the accessible population is a representative sample. Hence, out of the 132 members of the target population, the researcher focused on a sample size of 28 CHWs, 7 pregnant women, 7 nursing women and 6 key informants. Hence, the total sample size included 48 respondents. Hence, a sample size of 48 respondents is selected and is deemed to be representative of the entire population; "a sample is representative when the units constituting it were chosen in a process such that all the members

of the population have the same chance of making part of the sample" (Mugenda and Mugenda, 2003). The sample size is distributed in table below:

Table 1: Sample distribution

Categories	Target population	Sample size
Kavumu	16	7
Nyagisozi	16	7
Gisesero	16	7
Sahara	16	7
Key informants	6	6
Total	**67**	**38**
Pregnant women	26	7
Nursing women	39	7
Grand Total	**132**	**48**

Source: Fieldwork survey, December 2019

3.4.2. Sampling techniques

For the purpose of this study, the sample was selected using purposive sampling technique. Kenneth (2001) defined purposive sampling technique "as a method of sampling whereby the researcher uses his/her judgment about which to choose and picks only those who possess the required information and can meet the required purpose of the study" (Kenneth, 2001)

Patton (2002) stressed that "purposive sampling is where the Researcher deliberately decides who to include in the sample. It was used simply because the study was targeting basically custodians of the internal control systems". It also ensured that only people with applicable information are sampled, "purposive sampling has the lease bias and offered the most generalization and hence for the study to be more representative, it was important that the right method was chosen" (Patton, 2002. Purposive sampling technique was used to ensure that selected respondents are deemed to have adequate information on the study variables, minimize biasedness and ensure reliability of the data collected to fit for purpose of the study.

3.5. Data collection methods and instruments

Data for this study were collected by the use of key informant interview and focus group discussions. These tools are justified in the following paragraphs.

3.5.1. Interviews

For this study, interview is a useful qualitative data collection technique that can be used for a variety of purposes. The interview refers to:

> "A personal exchange of information between the interviewer and the interviewee (Bowling, 2012). In this case, the researcher used the in-depths interview schedule to guide the discussion with the respondents who are key informers and thus needed to elaborate on several issues. In-depths interviewing was applied by the researcher to the key informants because there is need to document the specific experiences and proposals of the respondents. In-depths interviews were used as the researcher pursues and tries to ask open-ended questions that elicit depth of information from relatively few people" (Casebeer and Verhoef, 2017).

Interviews were addressed to 6 key informants namely the 2 key informants in the health system (Sector social affairs and the CHWs supervisor) and 4 key informants outside the health system (4 executive secretaries of the cells in Busogo sector). Each interview was voice-tape recorded and the information collected was then written up to ensure the identification of key themes.

3.5.2. Focus group discussion

Focus group discussion (FGDs) was used to enable the researcher to gather detailed information on issues, concepts, perceptions and expectations of citizens on the perceived roles of CHWs in reducing child mortality over a short time. According to Casebeer and Verhoef (2017), FGDs are purposely conducted to gather qualitative data. FGDs provide respondents with the freedom to formulate their own responses and hence can unveil new and important aspects that had not been anticipated by the researcher. For the purpose of this research, FGDs was conducted in the local language and the researcher used a tape recorder to record information put together within the course of FGDs.

Moreover, FGDs constitute the ideal method of data collection for the sampled respondents who have been first grouped into groups. Groups were created based on respondents categories.

CHWs were grouped into 5 groups of 6-8 members based on their proximity. Pregnant women and nursing women also constituted another group for each and provided information on their perceptions to the role of CHWs in reducing child mortality rate in Busogo sector.

Hence, FGDs were used to solicit the views of those who would not be willing or able to speak up at larger group meetings. FGDs were used as they are quick and relatively easy to set up and the group dynamic aspect of it can provide useful information that individual data collection does not provide.

3.6. Sources of data

The researcher used both primary data and secondary data. The section below presents these data and the rationale of their usage.

3.6.1. Primary data

According to Mugenda and Mugenda (2003), primary data sources come from the people or work you are researching and therefore the most direct kind of information one can collect, hence, primary data are first hand data gathered by the research himself as a result of his investigations. In this case, primary data include the data from the interviews to key informants and focus group discussions from the selected respondents.

3.6.2. Secondary data

According to Patton (2002), secondary data are a kind of information that has been gathered by other researchers. Such information may be traced from textbooks, journals, reports, internet among others.

3.7. Data analysis

Qualitative data was analyzed through thematic analysis. This analysis as a descriptive method used "to objectively and systematically look for meanings and relationships of variables and concepts within samples of collected data. One of the pertinent issues when a researcher employed in this approach was to select 'coding units/ coding system, defines the coding units as the units of analysis which was best capture data in the body of work being analyzed" (Patton

,2002). During analysis, patterns observed were presented through descriptions, illustrations, tabulations and percentages.

3.8. Reliability and validity

The study tested the reliability and the validity of the research instruments used in this study. The following section presents the procedures that were applied to ensure the validity and reliability of the research instruments.

3.8.1. Reliability

Reliability refers to a measure of the degree to which the responses to the questionnaire are consistent and therefore yield consistent results. According to Mugenda and Mugenda (2003), "reliability is a measure of the degree to which a research instrument yields reliable results or data after repeated trials. An instrument is reliable when it can measure a variable accurately and obtain the same results over a period of time" (Mugenda and Mugenda, 2003),

To ensure the reliability of the research instruments, the researcher conducted a pilot study to check for accuracy and clarity. Mugenda and Mugenda (2003) suggested that use of a pilot study enabled the researcher to identify errors and make required changes. Moreover, the research instruments were sent to the supervisor who scrutinized the instruments and give comments and feedback. The feedback received from both the pilot study and the supervisor was added into the research instruments before being used in the study.

3.8.2. Validity

Validity as noted by Robson (2002) is "the degree to which result obtained from the analysis of the data actually represents the phenomenon under study. Validity is used to ensure that the study actually measures what it intends to measure from the beginning" (Robson, 2002). To ensure validity of the instruments, the study considered both the face and content validity of the questionnaire. To ensure validity of the instrument, face to face validity was assessed by having all the questions phrased in line with the study objectives. Content validity was undertaken through a review of the questionnaire by the supervisor. The researcher relied on the supervisor

to assist in undertaking the content validity of the data collection instrument. The study also adopted a large sample size where the majority of the study population is selected for the study a fact that enhanced the validity of the collected data.

3.9. Study limitations and mitigation strategies

Limitations are matters and occurrence that arise in a study which are out of the researcher's control. They limit the extensity to which a study can go, and sometimes affect the end results and conclusions can be drawn. Every study no matter how well it is conducted, constructed has limitations. During this study, a number of would-be resourceful respondents may fail to answer the questionnaires citing their busy schedules as the major reason. However, all was convinced to participate in the study giving them the time that they had requested for. This time ranged between three days and a week. However, this would delay the data collection to a large extent. Moreover, there would be the problem of getting selected respondents. A number of them would be probably in a hurry, rushing to do their work. Extra effort was needed to convince and get the required number of respondents.

3.10. Ethical considerations

Jackson (2018) noted that "researches whose subjects are people or animals must consider the conduct of their research and give attention to the ethical issues associated with carrying out their research. Hence, as this study dealt with people as respondents, the following issues were taken care of" (Jackson, 2018). The researcher first asked for permission to collect the data to sample selected, considerations were applied to methods of data collection, presentation and interpretation of the findings and citations and referencing.

The researcher explained the purpose of the study to the study participants and ensured voluntary participation in the study and provides information before the start of the interview. Moreover, the University of Rwanda granted an ethical clearance for the study to be conducted.

For privacy and confidentiality, the researcher observed the right of the respondents and ensured that their names and addresses are not disclosed. To avoid the plagiarism, information read from

other sources was paraphrased and put into the researcher's own words. Moreover, proper citations and quoting followed by proper references was used to avoid plagiarism.

3.11. Chapter conclusion

This chapter entitled "research methodology" presented the detailed methods and techniques that are used to conduct this research and specifically provided the research design, the descriptive of the study area, the study population, sampling design, data collection methods and instruments, types of data and data analysis methods. Moreover, the chapter detailed the measures to measure the reliability and validity of the research instruments and study limitations as well the measures to take care of the research ethics.

CHAPTER FOUR: COMMUNITY HEALTH WORKERS AND REDUCTION IN CHILD MORTALITY IN BUSOGO SECTOR: STUDY FINDINGS

4.0. Introduction

This chapter details the presentation, analysis and discussion of the findings in accordance to the specific. Specific objectives were (a) to explore the role of CHWs in ensuring the better health of children in Busogo Sector, (b) to find out the extent to which CHWs are effective in providing services aimed at reducing child mortality in Busogo Sector and (c) to identify the challenges facing CHWs in providing services aimed at reducing child mortality in Busogo Sector. To achieve these objectives, data were collected using, focus group discussions and key informant interviews. Data were analysed using thematic analysis and presented according to the specific objectives of the study.

4.1. Demographic characteristics of respondents

Before attempting to present the data, the research wanted to examine the demographic characteristics of sampled study participants. Presented demographic characteristics include information related to the gender, age, employment status, marital status and education level of respondents.

4.1.1. Gender of the respondents

Despite that the study was not gender sensitive, the researcher wanted to know differences in gender among the study participants. Hence, respondents were asked to indicate their gender and the data are presented in the following table:

Table4. 1: Distribution of respondents by gender

Gender	Frequency	Percentage
Male	12	25
Female	36	75
Total	48	100.0

Source: Field data, December 2019

Based on the data presented in Table 4.1, it was established that most of the selected CHWs to participate in the study were female (75%) while the minority of the study participants (25%) were male. This is justified by the fact that for every village, there are 2 ASM and 1 *binôme* (who are necessarily women) and 1 Community Health and Social Affairs CHW (CHSA CHW) who is necessarily a man and this demonstrated the fact that CHWs are dominated by females than males. This may also be the indication that females attend to the community activities with the great number than men because they have that passion of doing it with their whole hearts and they understand things that are related to their families well-being easily especially on the care giving to both children and women.

Findings corroborate with Ekechi *et al*. (2019) who also found that CHWs are mostly women due to the care work and the service they provide in maternal and child health are better than those of men. Moreover, Ekechi *et al*. (2019) also pointed out that most of the clients in rural areas are women and the female CHWs find it easy to mingle with them and even visit them at their homes. Haines *et al.* (2017) also found that female CHW perform better than male in promoting maternal and child health, follow up on antiretroviral therapy and tuberculosis treatment while male CHWs re better performer in record keeping. The view of Bentley (2009) support the current results and stress that male CHWs find it difficult to pass messages to women. Hence, the higher participation of women as compared to male.

4.1.2. Age of respondents

Age of the respondents was analysed in order to establish the representation of respondents in terms of age so as to avoid bias. Respondents were asked to indicate their age bracket and the table displays the age of respondents.

Table4. 2: Distribution of respondents by age

Age range	Frequency	Percentage
Between 16-30 years	6	12.5
Between 31-45 years	26	54.2
46 years and above	16	33.3
Total	48	100

Source: Field data, December 2019

Table 4.2 shows that 12.5% of the selected CHWs are in the age range of 16-30 years and 54.2% of the selected CHWs are between 31-45years while 33.2% of respondents have 46 years and above. Based on these findings and considering my observation, it can be deducted that activities of CHWs are best understood and performed by people in the age range of 31-45 years of age as these people are mature and stable enough to have a complete family, know how good to help children and pregnant women is and know how much precious a child is. Moreover, these people still have energy to work hard for their communities' welfare but are older enough to be respected in the community. However, people in the age of 16-30 years have low participation in CHWs' activities due to the fact that that most of them are still single, unstable and do not have adequate knowledge on pregnancy and child care. However, the selected sample of CHWs is balanced, hence there is a high probability that provided responses are accurate, valid and reliable. Findings are in line with Bhattacharrya *et al*. (2011) who also found that older CHWs are more respected in their communities.

4.1.3. Level of education

Education level was considered as important in this study as it determines the ability of an individual to analyze and reflect on a given phenomenon. Hence, an analysis of the levels of education was done in bid to establish the composition of members of the sample size in terms of their highest levels of education. Table 4.3 below presents the results.

Table4. 3: Distribution of respondents by education level

Level of education	**Frequency**	**Percentage**
Primary	38	79.2
Secondary	10	20.8
Bachelor's degree	0	0
Total	48	100

Source: Field data, December 2019

Table 4.3 that most of the sample CHWs (79.2%) have only a primary education level while only 20.8% of the selected CHWs have a secondary level of education and none of them reported to have a bachelor's degree.

Based on the researcher's observation and considering the level of education of respondents, the majority of respondents have low level of education, which may be justified by the reason that more available people to participate in the activities of CHWs are of primary education. This shows that these people have the basic knowledge that is needed to help children grow in a better environment and are vulnerable to poverty and low level socio-economic welfare. This is explained by Bhattacharrya *et al*. (2011) who prompted that literate or highly educated CHWs tend to be younger and Brown *et al*. (2016) view that CHWs with high educational qualification have opportunities for alternative employments and therefore migrate to find these jobs.

4.1.4. Marital status of respondents

Marital status of the CHWs that are selected to participate in this study was assessed and presented in the following table. Marital status was considered necessary as it may influence the motivation and willingness of an individual to participate in CHWs activities. Table 4.4 below presents the marital status of the study participants.

Table4. 4: Distribution of respondents by marital status

Marital status	**Frequency**	**Percentage**
Single	3	6.2
Married	27	56.3
Divorced	0	0
Widow/Widower	18	37.5
Total	48	100.0

Source: Field data, December 2019

Basing the observation on Table 4.4, it was shown that married CHWs dominate the selected CHWs who participated in this study as shown by 56.3% of the respondents. Moreover, table 4.4 also shows that only 6.2% of the CHWs are single and 37.5% of CHWs are widow/widower while none of them was divorced. To this, it was deducted that the dominance of married people is a good sign of stability in families, and the mind-set change of male partners to let their partner free to participate in the CHWs activities with the aim to contribute to the wellness of children and pregnant women in the community and the social welfare in general. Lehmann and

Sanders (2007) supported this comment by remarking that most CHWs programs consist of mature and married men and women but also widowers/ widows.

4.1.5. Employment status of respondents

The researcher wanted to know the employment status of the selected CHWs to be able to verify if it has influence on the mind-set on the participation in CHWs activities. This was done as the type of employment that someone is engaged in can have an influence on his/her availability to work for the community he/she lives in. So, the employment status was assessed and presented in Table 4.5 below.

Table4. 5: Distribution of respondents by type of employment

Type of employment	Frequency	Percentage
Unemployed	14	29.2
Employed	10	20.8
Self-employed	24	50
Total	48	100.0

Source: Field data, December 2019

Table 4.5 shows that most of the selected CHWs (50%) who participated in this study were self-employed in different activities such as farming, commerce among others while 29.2% of the CHWs selected to participate in the current study were un-employed and 20.8% of selected CHWs were formally employed. Based on these results, the researcher deducted that the dominance of respondents by unemployed CHWs is justified by the fact that unemployed people have enough time to be involved in any voluntary activity as at some extent participation in CHWs activities is rewarding and the fact that employed people do not have enough time, and even lack the willingness to participate in voluntary activity for their communities.

4.2. Key issues identified during the fieldwork

During field work, different key issues were identified and are considered as key themes of the study. The following sections presents these key issues which are presented under the headings of the role of CHWs in ensuring better health of children, the extent to which CHWs are

effective in providing services aimed at reducing child mortality and the challenges facing CHWs in providing services aimed at reducing child mortality in in Busogo sector.

4.2.1. Role of CHWs in ensuring better health of children in Busogo Sector

The study wanted first to assess the role of CHWs in ensuring the wellbeing of children in Busogo Sector. To achieve this objective, the researcher evaluated the views of CHWs and the beneficiaries on the activities undertaken by CHWs in a view of enhancing the wellbeing of children. The following section presents the findings.

4.2.1.1. Health promotion and preventive care

Health promotion and preventive care is believed that the most common taken function and role of CHWs is the promotion of health and preventive care in the community. Respondents (CHWs) were asked to indicate some of the activities that are undertaken by CHWs with the aim of enhancing health promotion and preventive care.

In an interview with a key informant, the following roles of CHWs in health promotion and preventive care arise:

> *"CHWs provide community based distribution of contraceptives to mothers and advice on maternal emergencies". CHWs also provide distribute preventive materials and supplies, counsel on and for ANC(Ante-natal Care) including tetanus immunization and malaria prevention during pregnancy, birth preparedness and clean delivery practices, assess danger signs of pregnancy and refer if present, counsel on new born care practices after delivery and counsel newborn danger signs" (Interview with a key informant, December 2019)*

Additionally, in Focus Group Discussion, one respondent highlighted that:

> *"CHWs provide preventive health care services by distributing commodities such as bed nets, iron folate supplements and other micronutrients and certain vaccines to children of certain age and pregnant women. All these activities aim at enhancing the wellbeing of the children and their mothers as well as the welfare of the entire community they serve" (Focus Group Discussion, December, 2019).*

Caring for, and educating community members about their health were also presented as key role of CHWs. There is a motivation behind this which is commitment to serving communities. During the FDG discussion, the following theme emerged:

> *"We [CHW] primarily provide health-related information and counseling in order to encourage behavior change among the community members. Mainly, we [CHWs] promote breastfeeding and child nutrition and immunization, and other key issues that are relevant to the wellbeing of the child and mothers' health and wellbeing. All these issues, once addressed, the wellbeing of the child and the mothers is enhanced" (Focus Group Discussion, December, 2019).*

In a key informant interview, the following function emerged as the respondent explained how CHWs promote mother and child health during pregnancy and after birth.

> *"CHWs play an essential role in the facilitation of the continuous care to both mother and child and act as a liaison between the community members and the health center". CHWs provide counseling to women during pregnancy, on the day of delivery and on the third day and seventh day after birth. For the two first visits during pregnancy, CHW provide information and train her about the antenatal care, preparation for birth, home care during pregnancy and optima; new born care practices. During the visits after birth, CHW assesses the signs of illness on the newborn, help the mother on breastfeeding and thermal care, weigh the newborn and advice on the best care for the mother and the newborn. During these visits, the CHW can identify whether the newborn is of low weight to refer her/him to the health center for further management (Key Informant interview, December 2019).*

Engagement of the CHWs in the provision of preventive care services was effective in enhancing exclusive breastfeeding during the first 6 months of life, promoting appropriate feeding in children after 6 months as recommended by WHO for optimal nutrition during early life and for optimal health outcomes, most notably the prevention of diarrhoea, malnutrition and other poor health outcomes.

Moreover, the engagement increased awareness among the community both men and women in the area of new born care and best feeding measures during and after pregnancy. Hence, the extension of this intervention was an important approach in slowing down of child mortality.

4.2.1.2. Community Mobilization

CHWs act as community mobilizers, initiating activities such as the digging of latrines, the identification of clean water sources, and the organization of nutrition and sanitation days.

In a key informant interview, the interviewee explained:

> *"Each village has pairs of CHWs who are trained in community-based integrated management of childhood illness and are responsible for promoting the use of bed nets for malaria prevention and kitchen gardens to address widespread malnutrition and stunting among children under the age of 5 years. CHWs pairs also help the Sector in the mobilization of the community by participating in community work meetings and give a discussion on health related issues that are identified by CHWs. CWHs also play a big role in health promotion during organized campaigns, such as the national MCH week when they help bring the maximum number of people and provide some services as part of the campaign" (Interview with a Key Informant, December 2019).*

Community mobilization campaigns organized by CHWs or campaigns in which CHWs participated have increased awareness of health issues among the citizens and enhanced their engagement in proper fighting against their negative outcomes. CHWs have also, via these campaigns enhanced the uptake of preventive measures like promotion of a clean home environment, access to safe water and adequate sanitation, good hygiene (most notably hand washing), exclusive breastfeeding during the first six months of life, and good nutrition which are all important for reducing the incidence of childhood diarrhoea and diarrhoea deaths. For child and mothers, these campaigns have improved women and men's understanding of the proper care for new born and child under the age of 5 years through proper nutrition, breastfeeding and health care when it is necessary. This has also resulted in reduced malaria and malnutrition among children under 5 years and enhanced the status of their heath and child mortality as whole.

4.2.1.3. Caring for sick child in the community

CHWs are trained on integrated community case management (CCM), a program that enables the CHWs to assess, classify and treat children aged between 2 month to 5 years with

pneumonia, diarrhoea, malaria, and malnutrition assessment in their communities. From the FGD, it was found that CHWs in Busogo Sector also provide curative health care services to pregnant women and children under 5 years. Tasks for this role commonly include the diagnosis and management of common childhood illnesses, such as malnutrition, diarrhea, and pneumonia, as well as timely referral to health facilities, when needed.

During a key informant interview, the following theme emerged"

> *"CHWs play a vital role in the early diagnosis of child illnesses in the community they [CHWs] serve. CHWs are equipped with adequate skills to be able to assess and treat pneumonia, diarrhoea and/or malaria among children under the age of 5 years. CHWs also assess possible cases of malnutrition among these children and take adequate measures to address the concern. During these interventions, CHWs are provided by the health center in their catchment with four medicines namely an antibiotic, an antimalarial, oral rehydration salts (ORS) and zinc tablets to be provided to children under 5 years"(Interview with a Key Informant, December 2019).*

Currently, CHWs are able to effectively and appropriately diagnose and treat children with non-severe pneumonia and children with fever using rapid diagnostic tests for malaria, and diarrhoea which significantly reduces the risk of death among children with this condition, and it can reduce the overall risk of death for all children living in Busogo sector.

4.2.1.4. Changing beliefs and practices around pregnancy and newborn care

Pregnancy, childbirth and the newborn period is surrounded by many cultural beliefs and traditional practices that could serve as a barrier to CHW work. Despite this challenge, CHWs were perceived as successful in changing certain practices during pregnancy and for newborn care.

> "Doing this *was a hindrance and a potential threat to the survival of the woman and the newborn which increased the rate of neonatal and child mortality" (Interview with a Key informant, December, 2019).*

CHWs invested more efforts in changing this trend through community mobilization and education and currently there is a lot of evidence that these beliefs changed. Currently, pregnant women are timely identified by CHWs, provided with pregnancy information and are aware of the antenatal care. Moreover, men are engaged when their wives are pregnant and can help her during pregnancy. When a husband is involved in the counseling during pregnancy, he can make decision to save money to prepare for delivery and help the wellbeing of the newborn. One CHW explained during the FGD:

> *"Beliefs around pregnancy and birth have now changed. Currently, pregnant women are aware of the best health care practices and the way they can treat their children when they are born (Interview with Focus Group, Dec., 2019)".*

Moreover, during pregnancy, CHWs educate pregnant women and her husband about newborn care rather than when the baby is born. This enables the mothers to get knowledge about newborn care practices beforehand such as newborn danger signs and the urgency around seeking care for them, breastfeeding messages are well received, and support for attachment and positioning was appreciated by mothers. Currently, CHWs reported that more women were attending ANC earlier in their pregnancies, with the exception of younger women and older women who were more likely to keep the pregnancy hidden for longer.

4.2.1.5. Referral and linking with health facilities

Despite that CHWs are trained on iCCM, and can detect and help mothers and children some cases, when the problem requires full medical attention, CHWs make referrals for mothers and children to visit health centres for further diagnosis, testing and treatment. Participants agreed that CHWs provide advice on seeking antenatal care and link mothers with health personnel in dispensaries and health centers.

CHWs are tasked to refer community members to see the health workers at nearest health center for better case management despite that health worker would be unable to perform well their work unless they are provided with updates from CHWs on the members' status.

During the FGD, it emerged that that during each visit to pregnant women, CHWs screen women and newborns for danger signs, and if necessary referring them to the health facility with a referral note to notify health workers to quickly attend to them.

> *"CHWs to be technically strong in providing knowledge and skills to the community members and providing health-related services depending on the members' expectations and signs (Interview with a Key Informant, December 2019).*

Currently, CHWs act as a liaison between the community members and the health professionals and demonstrate the importance of CHWs in resolving different health related issues from filling a prescription to keeping tabs on a neglectful mothers. CHWs are also effective in enhancing the adoption and the utilization of health services and linking the community and the health facilities.

However, a case of inefficiencies aroused during the FDG. CHWs noted that when a health facility is poorly staffed and equipped, there is less motivation for women to comply with referral and sometimes get less satisfied with the CHWs. One CHW explained:

> *"We [CHW] are sometimes offended by health workers at health center when we [CHWs] refer pregnant women there. For example, I, myself sent and accompanied a pregnant woman there, but when arriving there [health center], around 5 pm; the woman could not receive the services . . . She had to go to another health center and she later came up to [the district hospital]. She was annoyed and on my visit after delivery, she was angry at me that I did not help her well. But it was not my fault (Respondent Interview, December 2019).*

On other CHW also emphasized that:

> *"It is very sad to not only pregnant mothers but also us [CHW]. Imagine sending a mother ready to deliver a baby and she does not receive the services and she comes back…If you visit her on the next time or you try to send her to the health center, she may refuse. So, this it creates a barrier to us and the effective delivery of our services (Respondent Interview, December 2019)."*

Terrible and unfortunate theme emerged during the FGD. CHWs echoed that sometimes, health workers perceive them as lowly aides to them who should be deployed as assistants within health facilities, often completely misunderstanding their health promoting and enabling role within their communities.

During a key informant interview, the following supported was quoted"

> *"Many health workers lack the background and orientation to provide a supportive environment for us [CHWs]. Many [Health workers] are accustomed with medical services and lack adequate skills and care about primary health care services offered in the communities. Such way of thinking is ill-suited towards the provision of supportive working conditions and teamwork between CHWs and other health professionals as some of the categories are taken as not important as others* (Interview with a *Key informant, December, 2019).*

Hence, despite that changing attitude involves a complex and multifaceted process and reforms, giving health personnel specific experience of working in collaboration with CHWs can assist them in developing positive attitudes towards CHWs and assist the later in delivering effectively health care services to the communities they serve.

4.2.2. Extent to which CHWs are effective in providing services aimed at reducing child mortality in Busogo Sector

For CHWs to be effective in providing healthcare services aimed at reducing child mortality, they need a couple of things namely: training, motivation and financing, supervision and support.

4.2.2.1. Selection and training of CHWs

CHWs are generally selected by their communities based on criteria including literacy, past experience and social acceptance. CHWs are trained near their homes in the local language using "hands on approach" and were immediately deployed to their respective communities. However, most of the CHWs lack adequate education in health related discipline. Initially, coupled with immediate deployment, CHWs felt not ready and needed more supervision than they received.

CHWs were seen as 'just local people' who are "ordinary" without any medical training. During FGD, One female explained:

> *"Local people used to say we are just from the same village, what we have to talk to them about" (Respondent Interview, December 2019)*

CHWs lacked confidence in approaching households of higher namely those of educated people and economically wealthy people. During the FGD, the following theme raised:

> *"Before, it was complicated…it was just like a family talk as CHWs disseminate information, and the barriers could be the condition they are working in may not be favourable; some families may seem higher than the volunteer, so they may look at the information they are giving as not worth it as regards to the social status or as regards to education status. The poor young man or women feels threatened; yet the project targets the whole community. So, that is a major barrier to the effectiveness of the CHWs" (Interview with Focus Group, December 2019)*

To enhance their confidence, CHWs were constantly given adequate supervision and increased their confidence. Supervision was provided through monthly supervision visits with each CHW separately and monthly group meetings.

However, the monthly visits were shifted to quarterly basis as CHWs were evaluated and seen as well performing in their daily activities. Moreover, newly recruited CHWs receive on-job trainings by super-CHW. Despite that trainings are source of knowledge and confidence; trainings were not given frequently and not equitably to all the types of CHWs (ASM, Binômes and CHSA).

Most of CHWs appreciated organized trainings and indicated that training enabled them to improve upon their knowledge and best practices, gained recognition and appreciation from the community as their knowledge advanced. Tulenko *et al.* (2013) also found out that CHWs who are properly trained, equipped and supported can take on a range of tasks that otherwise depend on mid-level health workers.

From the FGD, the following theme emerged:

> *"In the beginning, community members gave us low value…but these days, they have recognized our [CHWs] value and it the community members who explains more to those hesitating to get the health services from us. Today, our [CHWs] value and importance has improved and people who have sick children also come to seek advice from us, which was not the case before (Interview with Focus Group, Dec., 2019)".*

One CHW explained:

> *Due to successive trainings we [CHWs] received, our knowledge improved and even the way we do thins was harnessed. This improved the community members' perception towards our [CHWs] activities. Before, people were [looking down on us], they said …"this person was trained for one week and is trying to give me advice". You would reach a home and they ignore you and they tell you to leave the place, and they tell you as they don't have time to attend to you, but these days they have changed and currently appreciate and recognize our [CHWs] importance" (Respondent Interview, Dec., 2019)*

For their role in nutrition promotion, CHWs are trained on nutrition different components of balanced diet, kitchen garden among others. However, CHWs specifically ASM [Assistante de santé Maternelle] are not trained in delivering infants. CHWs reported that sometimes are confronted with women delivering before arriving at the health centre and this is viewed as a gap in their knowledge ' … because we all know that the trainings will enhance our [CHWs] capacity in reducing infant and child mortality', said one CHW.

4.2.2.2. Supervision of CHWs

The success and effectiveness of CHWs hinges on regular and reliable support and supervision of their daily activities (Bhattacharyya *et al.,* 2001). Despite the discrepancies that are existing in the supervision system enacted by the Ministry of health, there are some mechanisms for the

supervision of CHWs to ensure the effectiveness of the service delivered by them to the communities.

During the FGD, it emerged that most CHWs meet with their supervisors once a month at the health centre to deliver reports, although there were no standard procedures used for field supervision. Some supervisors accompany CHWs on home visits occasionally, although this was not consistently a policy. Hence, many CHWs suggested that supervisors accompany them during their household visits to provide support and enable them to close the knowledge gap with the training they received and providing them more credibility and confidence among the community members. One CHW explained during the FGD:

> *"I like being supervised because people are used to me but they are not used to my supervisor. If I am with her, let us say a person is stubborn and does not want to listen to me, when I visit them with my supervisor and tell them that I am with my senior and ask that they speak to my supervisor because they do not want to listen to me. My supervisor then speaks to them and the situation ends up changing (Respondent Interview, December 2019)".*

Most of CHWs recognized the importance of the supervision and noted this in the FGDs, explaining that, on occasion, they learned valuable information from supervision visits. However, CHWs often primarily associated supervision to the handover of the monthly report and not always to obtaining guidance and assistance.

During the key informant interview, the following theme supporting the need of CHWs supervision ad supported emerged:

> *"Continuous supervision and support reduces the feeling of isolation that CHWs frequently experience in the field and helps to sustain their interest and motivation to do their assigned tasks and serves the interest of the communities (Interview with Focus Group, December 2019)".*

4.2.2.3. Motivation of CHWs

Motivation constitutes one of the main factors stimulating any individual to perform a given task effectively. Hence, for CHW to perform well their task, they need to be motivated both extrinsically and intrinsically. During this specific study, CHWs were asked to discuss on whether they are motivated by their work and the following themes emerged during the FDG.

Despite an overwhelming workload, the CHWs experienced a sense of pride in their work. Many stated that they felt they were an important part of the whole health system improvement that aimed to reduce the burden of disease in the population. In this context, Bhattacharyya *et al.*, (2001) recognize that "under a decentralized system, their roles were increasingly becoming critical in reducing key health indicators, such as the infant and child mortality rates. By playing a direct role in improving indicators, CHWs felt valued and respected in their communities" (Bhattacharyya *et al.*, 2001). With regard to community recognition, almost all CHWs expressed their feelings about the improving health of the population: '… One CHW explained:

> *"I feel happy when I see someone who was sick becoming healthy'. It is not only that he/she is among neighbors but also because he/she is a human being" (Respondent Interview, December 2019)*

Moreover, CHWs explained that they feel motivated by considering their social relationship between themselves [CHWs] and their community members. These relationships foster support and respect, as community members routinely approach CHWs for advice and support on health related issues. CHWs are also incentivized by the fact that self-management of time and households' time.

CHWs also shared that the programme gave them a higher status despite their gender. Some claimed that having this position had given them more authority in the household and more autonomy over household purchases. Many of the ASMs who were trained on family planning had started using family planning methods themselves, and served as role models for the women in the community.

Moreover, with regards to community recognition as a motivating factor, multiple women expressed their appreciation for the CHW efforts to care for them and their families. One pregnant woman explained:

> *"I can see that all CHWs do the best they can … I can see that they are needed in our society', and another woman appreciated how 'they follow and support us on a daily basis" (Respondent Interview, December 2019).*

Based on these testimonials of CHWs about their motivation, it was deducted that CHWs are not only motivated by intrinsic factors as provided by the MoH but also the social ties of the communities they serve. Social recognition and support enhance their effective performance and enables them to actively help people in need especially pregnant women and child. All these factors ensure that they [CHWs] do their work effectively and ensure reduced child mortality rate in their communities.

4.2.2.4. Financing of CHWs

Tulenko *et al.* (2013) highlights that "CHWs' activities are financed based on performance. MoH uses community performance-based financing (c-PBF), a remuneration mechanism based on outputs, to create incentives for CHWs". Therefore, CHWs are not given a monthly salary.

Moreover, CHWs are evaluated based on performance indicators and the resulting financial incentive is given to a cooperative of CHWs. Based on the FGD accounts, "some CHWs did not clearly understand the concept of cooperatives or cPBF, and they had not received proper training on how to set up the financial mechanisms or manage the cooperatives". CHWs reported that individual CHWs included in the management of cPBF have not been successful. Moreover, CHWs raised the point that transparency and accountability of cooperative managers contributed to hinder the financial success of their cooperatives.

CHW reported that the workload required of CHWs was high and for most CHWs, this engagement provided little or no financial gain. Some CHWs were unsure if the cPBF programs were still ongoing, '…

One CHW echoed:

"…….for the last 2 years, I do not know if the cPBF exists or if it was stopped" (Respondent Interview, December 2019)

Deduction may be that CHWs are not properly financed and supported financially. This may constitute a hindrance to their effectiveness despite the efforts invested by the MoH to support them financially. Hence, lack of financial means by CHWs reduce their effectiveness and efficiency in delivering services to the community as financial incentive is strong motivator to perform well.

4.2.2.5. System support to CHWs

Level of health care system support required for each task. Some tasks can be performed by the CHW alone and with very little support from the rest of the health care system. For other tasks, however, successful delivery depends on a well-functioning and responsive health system.

In Rwanda, a text messaging system through mobile phones (Rapid SMS-MCH) was implemented to allow CHWs to communicate with the mother-infant pairs they followed in their communities. Rapid SMS-MCH is a free, open-source software that can be customized to allow CHWs to connect to a national centralized database, the health facility, and an ambulance driver for emergencies others (Key informant interview, December, 2019).

Respondents confirmed that this system allows CHWs to keep better track of pregnancies and child wellbeing and outcomes of the CHWs visits and also allows for faster response in case of emergencies and improved involvement of CHWs during the critical moments of their patients' pregnancies.

4.2.3. Challenges facing CHWs in providing services aimed at reducing child mortality in Busogo Sector

Despite and coming from within the communities they serve and believing themselves to be caring, some felt not to be trusted or welcome in homes during their home visits and this is attributed to fear that they would violate patients' confidentiality.

"Some people would refuse to seek and receive our [CHWs] services. You can identify that if you are a neighbor to someone, you are nuts trusted by each other and that it is difficult for neighbors to share with you their issues (Interview with CHWs, December 2019).

Most particularly, CHWs are highly stigmatized by those living with HIV/AIDS and this constitutes a hindrance to their work and to the community's lack of trust. CHWs reported that the most fear for the community is that of being gossiped about within the community, that people would point fingers at them saying that they could be living with HIV if people see a CHW visiting their households.

Moreover, some of the pregnant women are reluctant to seek CHWs' services early on due to delayed appreciation for CHWs services, sometimes the target time for home visits may not be met and women or children with danger signs may not approach the CHW with danger signs because the CHW may not be available at the required time.

During the FGD, One of the strongest themes emerging from the CHW interviews was the CHWs perception that they had inadequate knowledge on some topics which undermined their performance during household visits to provide post-natal care. CHWs were aware of this and explained that at times they were unable to respond to mothers' questions.

"I do have knowledge but it is not adequate. Perhaps I need to be given additional information. There are questions that they ask where you find that I will not be confident when I respond to them" (*Respondent Interview, December 2019)*

This lack of knowledge and skills also led to CHWs being reluctant to examine the mothers and children with some conditions:

"When we go to check a newborn child, we do not have a clue about what are we going to check. We just get there and look at the child and see that they are able to feed" (*Respondent Interview, December 2019)*

CHWs suggested that they should receive additional training to ensure that their skills and knowledge were improved and updated.

> *"Information has to be updated regularly through workshops because sometimes after many years you forget things and these government things change all the time. They do not remain static"* (*Respondent Interview, December 2019)*

Most CHWs met with their supervisors once a month at the health centers to deliver reports, although there were no standard procedures used for field supervision. Some supervisors accompanied CHWs on home visits occasionally, although this was not consistently a policy. During this study, CHWs unanimously expressed the need for a supervisor to assist them, saying that they felt motivated and encouraged by the supervision.

> *"I like being supervised because it motivates you in your work". "Having other people come with you when you visit households encourages us…It also gives us that support" (Interview with Focus Group, December 2019)*

Most of CHWs recognized the importance of the supervision and noted this in the FGDs, explaining that, on occasion, they learned valuable information from supervision visits.

Large catchment areas imply that the CHW will need to cover longer distances, which has implications for transportation needs. In addition, when catchment areas are too large, CHWs may spend too much time getting to the person in need of health care or spending time on travel while the person that is needed is not around and not available. Many *binômes* felt that their range of work was too broad to allow a sufficient and quality provision of care. As a *binôme* CHW explained:

> *"We have 325 households to follow up each month and each of us takes a quarter of the households to accomplish our work, to help each other" (Respondent Interview, December 2019)*

Hence, it was found that as a result of the high workload, the three types of CHWs divided up the houses in the village, travelling only to the houses in their vicinity. This resulted in some households being visited by CHWs who did not have any training in specific areas, such as nutrition management or maternal health.

In FGD, the following issue was raised:

> *"We provide services to the community in my free time, and that's ok. But besides that there are specific days [like when] we need to collect all mothers or kids in my catchment area and [take them] to the health facility. And there are FCHV meetings on specific days at the health facility. So it's not in my free time. I am [tied] to working that day. So for these days, if an allowance is there, that would be good. Jobs like counseling mothers, informing them that tomorrow is immunization day, household visits to pregnant women and the recently delivered, counseling them about nutrition, iron intake, tetanus toxoid vaccinations, and deworming: for these activities remuneration is not needed because we are doing them in our spare time. For all these activities, remuneration is not necessary communities" (Interview with Focus Group, December 2019)*

CHW has little opportunity to keep his or her skills up-to-date and, therefore, may threaten the quality of care. Because CHWs also need to have the skills to detect which infants need additional care and referral, training may be longer. Having well-developed algorithms can, to a certain extent, ease the requirements made of the CHW by providing the CHW with an additional form of support during decision-making.

Moreover, promotional tasks are often regarded as simpler to perform than curative tasks. For example, when promoting family planning methods or HIV testing, CHWs may need to respond to a number of complex questions and concerns and may also experience socially challenging situations.

The role of community organizer can also be a challenging one as it is likely to involve complex tasks that need high degrees of tailoring, including the ability to organize and mobilize groups of people and lead them in problem-solving activities.

However, CHWs are continuously confronted with issues that are beyond those issues they are trained to address. For example, CHWs may frequently be approached about issues that are outside their scope of training. CHWs may also be confronted with non-health related problems, such as food insecurity, alcohol abuse, and social and domestic violence. This issue is a particular challenge for CHWs whose scope of practice is defined as health-related only.

> *"Refresher training sessions that include role plays on common difficult scenarios as a way to improve our communication skills of the workers are need to us to be able to perform our activities (Respondent Interview, December 2019).*

Another respondent highlighted the following:

> *"I propose that appropriate information and skills to deal with people who were fixed on strong negative feelings, such as 'we are poor, we can't do anything' or 'a woman's only role is to serve the husband, kids and the family' or 'the life or death of the mother or newborn is the will of God, in which the mortals cannot intervene' would be really helpful" (Respondent Interview, December 2019)*

> *"Realistically, CHWs need many things as far as information, education, and communication materials should be provided to them that could be carried to the households and used for talking about specific health issues" (Key Informant Interview, December 2019)*

For many CHWs, their roles of brokering between their communities and the health facilities are constrained by a lack of adequate tools and equipment. CHWs explained that they do not have anything else besides the psychological support which they offer to women and children in need to help as the only resource available to them. Some CHWs emphasized that they lack tools like MUAC tapes and thermometers and this constitute a challenge when visiting the households of pregnant and lactating mothers or children under five years.

> *"I think that is also a problem because when we visit a household we do not have tools of trade, we do not have enough and we are not trained on how to use them" (Respondent Interview, December 2019)*

Lack of proper support system from the health personnel made it difficult for CHWs to be as effective as they should be and could undermine their ability to function effectively in the household.

4.2.4. FGD with mothers

During the FGDs undertaken with nursing and pregnant women, most of the selected mothers strongly expressed their appreciation of the CHW visits. For the women who participated in the community beneficiary FGDs, the majority made statements recognizing the benefits of the CHW system and a positive attitude towards the CHWs was generally noted. Table below presents the mothers' views on the role of CHWs in reducing child mortality and ensuring their welfare. CHWs are good in providing maternal health care services and identified that the numbers of served households is high while CHWs are few so they need to be increased.

During the interviews, mothers shared many stories of how CHWs helped them during their pregnancy and with the newborn baby.

> *"What I liked is that she was able to give me advice and I listened to her. It helped me and she was complimented at the clinic as well. They asked what brought me to the clinic. I told them it was the CHW who said I must come to the clinic. They said she has done well and I went to the clinic early during my pregnancy" (Respondent Interview, December 2019)*

Multiple women expressed their appreciation for the CHW efforts to care for them and their families. One pregnant woman explained:

> *"I can see that all CHWs do the best they can … I can see that they are needed in our society' and I appreciate how CHWs follow and support us on a daily basis" (Respondent Interview, December 2019)*

Moreover, beneficiaries described CHWs as their main source of educational messages about topics such as nutrition, malaria, kitchen gardens, family planning, and hygiene. Most of the beneficiaries in the focus groups seemed to know that when a child is malnourished, they should

go to the CHW, and if the problem was serious, the CHW would accompany the child to the health centre and follow up on progress afterwards.

Many of the women expressed that they had some concerns about disclosure of private information when the CHW started visiting the household, but as time went on they were reassured that the CHW did not gossip about others, and they were able to disclose private information.

> *"It is good to us [mothers]. No one will hear another person talking about your problem. If you open yourself to the CHW, it surely remains between the two of you. She just keeps asking how you feel and how things are going. You then tell her that here it is better; there it is still not fine. She gives you good advice and she is very patient. She gives you your time. She is very helpful" (Respondent Interview, December 2019)*

Mothers expressed appreciation that CHWs were trained to provide care and were able to provide information in a way that they could easily understand. In particular, mothers appreciated that the CHW is close by and could be called quickly in an emergency, and that CHWs were from their own community and were able to understand the lived experiences of the mothers.

> *"I am happy about that because I know it is someone who knows my condition, someone who knows where I come from. It is better to have someone who knows you who will be able to give you the right advice" (Respondent Interview, December, 2019)*

Mothers shared that they were generally satisfied with CHW visits to their home because it allowed sufficient time for them to discuss different topics which is not always possible in the clinic setting with a nurse.

> *"Even when you go to the clinic, there is not enough time to talk like the time the CHW has. During the [CHW] visits there is enough time to talk unlike the time at the clinic. I liked that because we receive more information than we get at the clinic because the time*

at the clinic is not enough, nurses are rushing to service everyone" (Respondent Interview, December, 2019)

Findings above imply that there is a positive impact of the CHWs roles in enhancing the welfare of child and reducing the mortality rate in Busogo Sector. This is supported by Wangalwa *et al.* (2013) who established that there was significant increase in essential maternal and neonatal care practices demonstrates that, community health strategy using CHWs was an appropriate platform to deliver community based interventions. In a key informant interview, the interviewee explained:

"*CHW is expected to perform a wide range of functions including home visits to pregnant women and newborns, first aid and treatment of simple and common ailments, healthcare education and mobilization, promotion of best nutrition practices, maternal and child health and family planning activities, communicable disease control, referrals, record-keeping, and collection of data on vital events" (Interview with a Key informant, December 2019).*

Another key informant (December 2019) added that 2019) that their [CHWs] performance has reduced the morbidity and mortality among newborn and under- five children due to immunization, counseling and training nursing mothers on best new-born care practices, adding that they do not have many of the childhood diseases in our communities (Interview with a Key informant, December 2019)

Based on these, it is noteworthy to say that CHWs are there to help the welfare of the entire community but specifically pregnant women and children. This is so as, through their home visits, CHWs are able to identify pregnant women and newborns in need of medical attention and care, promote and encourage appropriate care-seeking, and provide counseling and support for home care practices across the periods of pregnancy, newborn and childhood. Moreover, CHWs act as a liaison between the community and the health facilities and hence promote adherence to treatment and follow–up among the community members.

4.2.5. Summary of findings and discussion

CHWs were shown to provide a range of preventive interventions for Child Health services in Busogo sector. These include distribution of bed nets, iron folate supplements and other

micronutrients and certain vaccines to children of certain age and pregnant women which resulted in better child health and reduced child mortality in the area. It was shown that CHWs promote breastfeeding and child nutrition and immunization, and other key issues that are relevant to the wellbeing of the child and mothers' health and wellbeing. Findings corroborate with Medhanyie *et al.* (2012) research in Ethiopia that found out that HEWs have contributed substantially to the improvement in women's utilization of family planning, antenatal care and HIV testing services. Lewin *et al.* (2010) also provided evidence for positive impacts of CHWs on immunization uptake among children, breastfeeding and improved care-seeking at health facilities for sick young children.

Perry and Zullinger (2012) also found that regular distribution of micronutrients to pregnant and lactating women such as folate and ion, by CHWs has been associated with favorable results for birth weight and mortality in neonates and pre-term infants: intrauterine growth restriction is reduced by 14% which ensure better health for children. CHWs provide linkage between community members' especially pregnant women and child under five years and formal health facilities as they received information and advice on maternal health care from CHWs. Findings are supported by Khan (2008) who identified that CHWs acted were the link between health services and community members' health in Kenya and contributed to the reduction in the child mortality rate by identifying danger sign for newborns and during pregnancy.

CHWs provide advice to pregnant women to go for antenatal care more often, train them for birth and newborn care best practices. Hence, CHW provides continuous support to pregnant women and detect high risks pregnancies and even labor complications so that timely referral can be made. CHWs play a vital role in the early diagnosis and management of common childhood illnesses for example diagnosis of malnutrition, diarrhea and pneumonia in children and in the worst scenario, provision of referral when needed.

However, it was also found that CHWs meet some challenges that hinder their effectiveness. Lack of remuneration relative to assigned workloads which leads to poor quality of service was found to be a leading challenge to CHWs. Community trust and demand for the service is a key to the success of community health workers programs. However, this study found out that community members lack trust to CHWs which undermine their effectiveness. Low demand for

community services could be due to lack of trust in CHW skills, low availability of CHWs or cultural beliefs, particularly in the context of new-born interventions. Haines *et al*. (2017) suggested that community participation and structures such as village health committees can play an important advocacy and social mobilisation role through their interaction with CHWs. Findings also corroborate with Brown *et al.* (2006) who agreed that CHWs face a myriad of challenges including selection low level or no education and Lehmann and Sanders (2007) who identified a lack of professional training in health the nature of services and workload while Ballester (2005) highlighted the inter-relationships between CHWs, health workers at health facilities and community members and unclear remuneration or motivation mechanisms.

4.3. Chapter conclusion

This chapter details data analysis, presentation and discussion of the findings in accordance to the specific. Specific objectives were (a) to explore the role of CHWs in ensuring the better health of children in Busogo Sector, (b) to find out the extent to which CHWs are effective in providing services aimed at reducing child mortality in Busogo Sector and (c) to identify the challenges facing CHWs in providing services aimed at reducing child mortality in Busogo Sector. To achieve these objectives, data were collected using focus group discussions and key informant interviews. Data were analysed using thematic analysis and presented based on themes developed during the research time.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.0. Introduction

This chapter five provided a detailed general conclusion based on the study findings and draws some key recommendations for policy implications. Finally, the chapter also provides some areas for future researchers.

5.1. General conclusion

Based on the findings, it was concluded that CHWs were essential and effective in the reduction of child mortality in Busogo sector by performing different activities and roles aimed at enhancing better health of children. CHWs have been a proactive mechanism towards enhancing health promotion in the community and the provision of preventive care to mothers and children under the age of five. Moreover, CHWs also contributed significantly the mobilization of the community towards best practices and uptake of preventive measures such as promotion of hygiene, fighting against malnutrition and stunting which enhance and better health of children. Not only this, CHWs play an active role in the early identification of pregnant women and newborns in need of medical care, promote and encourage appropriate care-seeking, and provide counseling and support for home care practices across the periods of pregnancy, newborn and childhood in line with the Life course theory that posits that care given to children at birth, or even that given to their mothers prior to their birth, will affect their immediate wellbeing and will have an impact on their health and development in later years. Moreover, CHWs act as a liaison between the community and the health facilities and hence promote adherence to treatment and follow–up among the community members.

Furthermore, CHWs also have played am essential role in the provision of curative measures by caring for sick children and pregnant mothers in their communities and when necessary refereeing both mother and children to the health facilities for further treatment and management which in turn reduce the risk of death among these children. Moreover, CHWs play an important role in the overall reduction of the burden of disease from serious, readily preventable or treatable conditions with specific emphasize on women and children under the age of five years.

Moreover, CHWs are promising health-workforce despite that there is a substantial concern about their effectiveness and efficiency in the delivery of the service to the person in need of their health. CHWs are constrained mostly by skills gap translated by lack of knowledge on some health related topics, inadequate or lack of continuous trainings for skills and capacity development, lack of proper supervision to enhance their effectiveness, large catchment and coverage area and work overloads and lack of adequate tools and equipment, and poor motivation. However, CHWs who are properly trained, equipped and supported can take on a range of tasks that otherwise depend on mid-level health workers and supplement the efforts of the government to reduce child mortality in the country. The study was underpinned by the Life Course Theory (LCT) advocates that care given to children at birth and to their mothers before birth, affect their immediate wellbeing and have an impact on their health and development in later years (Fine et *al*., 2010). LCT also advocates that to address health needs of the whole person, family and community, it is critical to involve community members in setting priorities and developing approaches. Hence, the involvement of CHWs in providing different services to both pregnant women and children is of paramount importance in bettering child health in Busogo Sector. In the same vein, Role Development theory suggests that "professional roles define a set of work responsibilities and create performance limits where no legal definition exists and assumes that creating a new formal role requires that the developer identify a need, determine the selection criteria and training requirements, establish performance guidelines and outline the evaluation process. Hence, CHWs' roles were developed and attributed to them to enable them participate in enhancing better health of the population they serve. Moreover, the MoH has created their roles, determine selection criteria, performance requirements and guidelines and evaluation process to CHWs.

5.2. Recommendations

Despite that the foundations of a successful, effective community-based service were in place, there is potential to build on this success by improving knowledge, skills and self-efficacy among CHWs. CHWs were aware of the challenges, and felt that these inadequacies undermined their credibility in the eyes of the community. The following recommendations are provided:

5.2.1. To MoH

1. MoH should continuously provide adequate training to CHWs to update and develop their skills. Providing training that would allow CHWs to have as much flexibility in their skills as they currently have in their schedules may increase the effectiveness of CHWs.
2. MoH should establish a proper supervision system to CWHs and CHW supervisors should receive special training for their role, and they should be provided adequate resources (include time and transport) to carry out their responsibilities adequately.
3. MoH should design ways to provide to CHWs with adequate financial and non-financial incentives. As CHWs are working more than few hours in a week, it is better for them to receive wages that commensurate with their workload and time spent at work to strengthen their spirit of volunteerism and eagerness to help the community they serve.
4. MoH should consider to expand the CHWs scope by adding other services such as community midwives with strong ties to the community and having easy access to most families within the communities. This could be an added advantage and added value amidst efforts to address and eradicate child mortality in the country.

5.2.2. To Ruhengeri Referral Hospital

1. Ruhengeri Referral should formally introduce CHWs to the health system and its staff in the clinics and health posts with a clear delineation of their responsibilities and capabilities.
2. Ruhengeri Referral hospital in collaboration with health center should create a strong collaboration between CHWs and other health personnel

5.5. Suggestion for future researches

This research only covered a small area of study (Busogo sector) which limit the generalization of the findings. It is recommended that the research would be replicated but covering large area of study to enable the generalization of the findings.

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APPENDICES

RWANDA NATIONAL POLICE

NATIONAL POLICE COLLEGE
TEL: (+250)788311956
P.O.BOX: 23 Musanze
E-mail: npc@police.gov.rw

Musanze, DEC 19

Pour Accord

TO WHOM IT MAY CONCERN

This is to confirm that **CSP Francis MUHETO** is a student of Rwanda National Police College, undertaking a Master's Degree in Peace Studies and Conflict Transformation for the academic year 2019-2020. He is conducting a research on: *"The role of community health workers in reducing child mortality: A case study of Busogo Sector, period between 2014-2019"*, for which he is required to collect data from relevant sources.

Any assistance rendered to him in this regard is highly valued by this College.

F NTIRUSHWA
CP
D/COMMANDANT

Musanze district
Muhoza Sector
Tel: +250788817101
12th April 2020

Pour Accord

To: Executive Secretary
Busogo Sector
Musanze district

Dear Sir,

Re: **Request for data for academic research**

I am writing this letter to present my humbly request of your approval to collect data for academic uses in the [illegible] you are heading.

In fact, I am a student at University of Rwanda, College of Arts and Social Sciences, Center for Conflict management, Musanze Campus. I am undertaking an academic research on "**Role of Community Health Workers in reducing child mortality: A case of Busogo Sector**. Hence, I am requesting for your approval to collect and use information related to this entity to this endeavor. I assure you that this information, once granted permission will be kept with utmost confidentiality and for academic purposes only.

I am looking forward to hearing from you soon.

Sincerely Yours,

Francis MUHETO

FGD GUIDELINE

Dear participants,

My name is **Francis MUHETO;** I am a student at University of Rwanda, pursuing a Masters of Arts in Peace Studies and Conflict Transformation. It is a requirement that a student writes a project in the field of study. For that purpose, I am conducting research on "**Role of community health workers (CHWs) in reducing child mortality in Rwanda: A case of Busogo sector".** Hence, this focus group discussion is conducted to gain a better understanding towards this undertaking. Please spare some time to participate in this discussion to enable me to complete this study for which I will be grateful. I, myself will conduct this discussion and at the same time will observe and take notes. I will ask you several open questions. Your personal opinions and view are very important for me. There is no right or wrong answers. Please feel welcome to express yourself freely during the discussion. This conversation will be tape recorded, your responses will remain anonymous and no names will be mentioned in the report and the information provided will be used purely for academic purposes and will be treated with strict and utmost confidentiality. The discussion will last for about one hour. I kindly ask you to give everyone the chance to express their opinion during the conversation. Please respond as honestly and truthfully as possible.

Thanks in advance for your support.
Regards

Francis MUHETO

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Demographic Characteristics of respondents	Gender	a. Male b. Female
	Age	a. Between 16-30 years b. Between 31-45 years c. 46 years and above
	Level of education	a. Primary b. Secondary c. Bachelors' degree
	Marital status	a. Single b. Married c. Divorced d. Widow/Widower
	Employment status	a. Unemployed b. Employed c. Self-employed

SECTION B: QUESTIONS FOR DISCUSSION WITH CHWS

Research Objectives	Dependent variable	Independent variables	Research Questions
1.To explore the role of CHWs in ensuring better health of children in Busogo Sector	Enhanced Child health	Health promotion and preventive care	1. What do you think are the role of CHWs in promoting health of children in this sector? 2. What kind of assistance did you receive/is provided by CHWs in relation to preventive care to your children? 3. How do you rate the way CHWs cares to sick people especially children in your households? 4. How many times CHWs visit pregnant women during the course of pregnancy? 5. What are the main topics of discussions do CHWs discuss with pregnant women during their visits? 6. Do CHWs provide distribute preventive materials and supplies (ITNs, nutritious foods) to both pregnant women and children? 7.
		Community mobilization	1. Do CHWs participate in community works as other citizens?

			2. What do you think is their role in mobilizing the community members? 3. How is information provided by CHWs received by community members? 4. Do you think mobilization campaigns undertaken by CHWs impacted on reducing child mortality in Busogo sector? 5. How does such information affect the level of child mortality in this sector? 6. What do you think have changed in the community as a result of CHWs program in Busogo sector?
		Child care and curative measures	1. CHWs have been trained to assess some of the childhood illnesses. What are the main illnesses treated by CHWs? 2. If a child suffers one of these illnesses, how do you perceive the care given by CHWs to children in this area? 3. Do you think CHWs are effective in caring to sick children? How? 4. How CHWs do contributed to child wellbeing in this sector?
		Referral and linkage to Health Facilities	1. Why do CHWs refer community members to health facilities while they are trained to offer basic care? 2. How do you take manage to refer people to health facilities?

			3. Do you think linking people to health facilities by CHWs is effective towards enhancing child health? 4. What do you think of CHWs and health workers relationships? Are they effective? 5. Do CHWs Advice on seeking antenatal care to pregnant women? 1. Do you think, by referring pregnant women and children to health facilities, CHWs have enhanced child health? Does it affect the level of child mortality?
2. To find out the extent to which CHWs are effective in providing services aimed at reducing child mortality in Busogo Sector	Reduced child mortality	Selection and training	1. How and who select CHWs before being deployed in their communities? 2. How are CHWs trained before being deployed in their communities? 3. Do you think the selection and training courses adopted are effective to ensure that CHWs are well received by the community they serve? 4. How are CHWs received by the community members? Are they appreciated or neglected? 5. Do CHWs regularly receive refresher training to upgrade their skills? 6. Do you think the way CHWs are selected and trained make them effective to offer their service in a way to reduce child

			mortality in Busogo sector?
		Supervision and support	1. Who are the supervisors of CHWs at cell level? At sector levels? 2. How many times in month do CHWs meet their supervisors? 3. Do you think this frequency is enough for a CHW to perform well? 4. Do you like being tightly supervised? 5. Why do you consider that supervision is important in your daily works? 6. Do you think supervision affect CHWs effective ness in delivering service to the community? 7. What are other support do you receive from your supervisors?
		Motivation and financing	1. Do you feel motivated in working for the community you serve? 2. What are the main motivation factors do you receive? 3. Do you think CHWs are motivated enough to effectively perform their duties? 4. Do CHWs have a monthly basic salary they earn for their services?

			5. Do you receive any financial rewards when you achieved your target? 6. How do you rate what you receive as motivation or financing factors?
3. To identify the challenges facing CHWs in providing services aimed at reducing child mortality in Busogo Sector	Challenges	Community acceptance	1. How are CHWs received by the Community you are serving? 2. What are the perceptions of the community members towards CHWs? 3. What are the strongest feedback do you receive from the community? Are they negative or positive? 4. If negative, what are the reasons for such perceptions? 5. Do these perceptions affect CHWs effectiveness and performance?
		Skills	1. Do you think CHWs have adequate skills to perform their duties? 2. Do CHWs provide proper response to all queries of community members? 3. What do you think should be done to ensure adequate functioning of CHWs?
		Workloads and payments	1. How many households are served by CHWs in a cell? 2. Do you see such workload manageable by CHWs?

			3. Do you have an established support system to help CHWs in service delivery where the workload or catchment area is high? 4. Are CHWs compensated based on their workloads? 5. Do you think the workload to CHWs is challenging? How?

KEY INFORMANT INTERVIEW GUIDE

1. What do you think are the roles of CHWs in promoting health of children in this sector?
2. What do you think CHWs' role in mobilizing the community members?
3. How is information provided by CHWs received by community members?
4. Do you think mobilization campaigns undertaken by CHWs impacted on reducing child mortality in Busogo sector?
5. How does such information affect the level of child mortality in this sector?
6. What do you think have changed in the community as a result of CHWs program in Busogo sector?
7. CHWs have been trained to assess some of the childhood illnesses. What are the main illnesses treated by CHWs?
8. Why do CHWs refer community members to health facilities while they are trained to offer basic care?
9. Do you think linking people to health facilities by CHWs is effective towards enhancing child health?
10. What do you think of CHWs and health workers relationships? Are they effective?
11. How and who select CHWs before being deployed in their communities?
12. How are CHWs trained before being deployed in their communities?
13. Do you think the selection and training courses adopted are effective to ensure that CHWs are well received by the community they serve?
14. How are CHWs received by the community members? Are they appreciated or neglected?
15. Who are the supervisors of CHWs at cell level? At sector levels?
16. Do you think supervision affect CHWs effectiveness in delivering service to the community?
17. Do you think CHWs are motivated enough to effectively perform their duties?

THE ROLE OF COMMUNITY HEALTH WORKERS IN REDUCING CHILD MORTALITY: A CASE STUDY OF BUSOGO SECTOR, PERIOD BETWEEN 2014 -2019

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