Timely Access to Maternal, Neonatal and Child Healthcare for rural communities in Rwanda: The Role of Community Health Workers

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Abstract

Introduction: In Rwanda, although there has been some progress in health care delivery as expressed in the reduction in maternal and child mortality, rates are still high and geographically variable. Improving equitable access to quality healthcare services for maternal, neonatal and child healthcare (MNCH), community-based maternal, neonatal and child healthcare (CBMNCH) depends upon using “community health workers” (CHWs). Yet CHWs program faces difficulties that upset delivery of the quality of the comprehensive package of services. Unfortunately, little is known about CHWs` performance and job satisfaction in the provision of CBMNCH.

Goal: The study aimed to provide insight into the performance and job satisfaction of CHWs for timely access to maternal, neonatal, and child healthcare for rural communities in Rwanda.

Method: This quantitative cross-sectional study involved a survey of 500 sampled CHWs who are involved in CBMNCH in three selected rural districts of the southern province: Gisagara, Muhanga, and Ruhango district. The sample size in each district was calculated based on a district proportionate allocation sampling technique, probability proportional to size. The survey was conducted from June to September 2019. CHWs` job performance and job satisfaction were categorized as high, middle and low. Ordinal regression analysis was used to examine the correlates of CHWs` job performance and the determinants of their job satisfaction.

Results: CHWs who were more likely to report high performance on the job had more years of experience (2.51, p<0.05), or were highly satisfied with their jobs (OR=7.30, p<001). Poor access to work materials (e.g., registers and educational tools) and lack of peer support (OR=0.46, p<.05) negatively influenced CHWs performance with ORs of 0.43 (p<0.01) and 0.46 (p<0.05) respectively. The determinants of CHWs job satisfaction were motivation (OR=8.59, p<0.001), training (OR=2.24, p<0.05p<.001), financial incentives (OR=0.53 (p<.01)p<.001), individual supervision (OR=6.19, p<0.001p<.001), and peer support (OR=2.66, p<0.01p<.01). A lack of required assessment materials (OR=0.32 (p<0.05p<.001),
and poor knowledge about CBMNCH (OR=0.51, p<0.05, p<.001) negatively affected job satisfaction.

**Conclusion**: The findings indicated that the managers of community health program and other stakeholders need to find on how to reduce CHWs heavy the workloads and how to improve the severe working conditions of CHWs when considering the assignment of their responsibilities to enable effective CBMNCH with good quality.

**Keywords**: Maternal, Health, Child, Access, Healthcare, Community, Worker, Rwanda
Summary for Lay Audience

The purpose of this thesis entitled “Timely access to Maternal, neonatal and Child healthcare for rural communities in Rwanda: role of Community Health Workers” is to understand the performance and job satisfaction of CHWs in service provision of Community-based maternal, newborn and child healthcare (CBMNCH). CHWs have been used as primary caregivers for improving equitable access to quality services for maternal, neonatal, and child healthcare. Despite the presence of the Community Health Worker’s program, to date, little is known on CHWs` performance and job satisfaction. It is in this context that this study was designed to examine the performance and job satisfaction of CHWs for service provision of CBMNCH. The results showed that CHW`s performance, like any other health workers, is influenced by their job satisfaction and motivation. CHWs` job satisfaction was associated with factors such as peer support, workload, access to required materials, financial incentives, and individual supportive supervision. In conclusion, there is a need to enable the effectiveness and quality of services provided for timely access to maternal, neonatal, and child healthcare in rural communities. This study recommends that healthcare managers and stakeholders need to put into consideration the factors influencing CHWs` job performance and job satisfaction as Rwanda strife’s to improve maternal and child health.
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List of Abbreviations

ANC: Antenatal Care
AIDS: Acquired Immunodeficiency Syndrome
ASM: Animatrice de Santé Maternelle
CBMNCH: Community-Based Maternal, Neonatal, and Child healthcare
CH: Community Healthy
CHU: Community Health Unit
CHWs: Community Health Workers
DHS: Demographic Health Survey
HC: Health Center
HIV: Human Immunodeficiency Virus
MNCH: Maternal, Neonatal, and Child Health
MDG: Millenium Development Goals
MoH: Ministry of Health
NISR: National Institute of Statistics, Rwanda
PMNCH: Partnership for Maternal, Newborn and Child Health
RBC: Rwanda Biomedical Center
SES: Social Economic Status
SMS: Short Message Service
SPSS: Statistical Package for the Social Sciences
TSAM: Training, Support, and Access Model
UNAIDS: United Nations Programme on HIV and AIDS
UWO: University of Western Ontario
WHO: World Health Organization
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Chapter 1

1.0. Introduction

Poor access to health care services has resulted in high maternal, neonatal, and child mortality and morbidity, especially in middle and low-income countries. In Rwanda, there were 270 death/100,000 women ages 15-49 in 2015, because of pregnancy or pregnancy-related causes (National Institute of statistics, 2015). Many countries are implanted community-based interventions using CHWs (CHWs) to improve access to maternal and child healthcare. The CHWs are supposed to be trained and provided with support. This study seeks to understand the predictors of CHWs job satisfaction and performance, given that these are strong determinants of the provision of timely access to maternal and newborn healthcare services. Therefore, this chapter introduces the background, research questions, objectives, significance, and the organization of the thesis.

1.1. Background and Study Context

Poor access to health care services are resulting in high maternal, neonatal, and child mortality and morbidity, especially in middle and low-income countries like Rwanda (WHO, 2015; WHO, 2010). According to WHO (2010), inequitable access to health care services partly explains the disparity in a rural-urban dichotomy in morbidity and mortality in many countries. Residents in urban areas tend to have improved health outcomes compared to their counterparts in rural communities (WHO, 2010). In several parts of the developing world, there is a deficiency of skilled health professionals. For instance, sub-Saharan Africa remains below the WHO recommended a limit of 2.3 medical doctors, midwives, and nurses, per thousand individuals. Medical doctors are particularly unevenly distributed among urban and rural communities, with deficiencies being considerably more intense in rural communities (Jarvis & Termini, 2012). In response, CHWs are being depended upon in some countries around the world to address the issue of deficiency health providers by enhancing the provision of primary health care.
services and promoting health in rural settings or underserved communities (Claire Glenton & Javadi, 2012). The concept of universal health coverage as espoused by the Alma Atta Commission, and subsequently adopted by the WHO is well placed to reduce inequalities in health access. The evidence points to persistent inequitable access to medicinal and other health services after decades of policy intervention in these contexts (Neal, Channon, Carter, & Falkingham, 2015). Some countries are endeavouring to close the healthcare gap through universal health coverage, which guarantees reliable and timely access to improved health access regardless of geography and socioeconomic circumstances (WHO, 2010). It has, therefore, been argued that enhancing equitable access to quality medical services, needs global and national investments that bring health care services closer to those in most need (Rao & Pilot, 2014).

In line with the need to improve universal health coverage to deprived communities, the role of CHWs in rural areas in developing countries cannot be overemphasized. A significant priority in health policy is that essential health care services should be accessible geographically: close to where individuals live and work (Rao & Pilot, 2014). CHWs are mostly residents in these rural communities. Therefore, the decentralization of healthcare services to remote and rural settings through CHWs have the advantage of geographical proximity and readily accessible within rural settings which also helps bridge socio-cultural and linguistic barriers to health care delivery (Kelly et al., 2001). In a meta-analysis of maternal and child health by Kassebaum et al. (2014), explained the positive impact of CHWs on reducing maternal and child mortality between 1990-2003 in varying contexts. However, although child mortality reduced about half since the 1990s, and maternal mortality dropped 1.3% every year since 1990 (Kassebaum et al., 2014); still over 17,000 children are reported to die annually from preventable causes (Requejo & Bhutta, 2015). Stillbirth rates have not significantly changed, and many women are losing their lives due to perinatal-related complications (Requejo & Bhutta, 2015).

In Rwanda, a country known as “the land of a thousand hills,” in Eastern Africa on a highland plateau averaging 1,200 to 2,000 m in elevation, the concept of CHWs is not new. With a commitment to provide universal healthcare as part of its Vision
2020 Strategy, the Rwandan government has implemented a national CHWs program since 2007 as a bridge between local communities and the health care system (MoH-Rwanda, 2016). Each village (around 100–250 family units) has one CHW (female), called an “ASM” (Animatrice de santé Maternelle), explicitly focused on follow up of women during pregnancy and after birth, and new-born. They provide Community-Based Maternal, Neonatal, and Child healthcare (CBMNCH) (MoH-Rwanda, 2013).

Although there has been some progress in health care delivery as expressed in the reduction in maternal and child mortality, rates are still high and geographical variable (NISR, 2015; Condo et al., 2014). According to recent Rwanda Demographic and Health Survey 2014-2015, the annual number of maternal deaths per 100,000 women ages 15-49, was 210. Maternal deaths rate accounted for 15% of all deaths to women age 15-49. In other words, about 1 in 6 Rwandan women who died in the five years preceding the DHS-2014/2015 died because of pregnancy or pregnancy-related causes. Overall, the infant mortality rate is 32 per 1,000 live birth, and under-five mortality rates are 50 per 1,000 live births (NISR, 2015).

Since its inception, community-based interventions have been generally seen to have fundamentally contributed towards current health achievements in Rwanda (MoH, 2015). However, in the same way as other African nations, the CHWs program in Rwanda still faces huge difficulties that upset delivery of the quality of the comprehensive package of services. These difficulties extend from the low limit capacity of CHWs to insufficient resources to sustain routine community health activities (MoH, 2015). Based on this background, in order to strengthen its CHWs program, Rwanda Ministry of Health in partnership with Western Ontario University introduced in 2016 the “Training, Support, Access Model” (TSAM) project in the six districts with high MNCH needs amongst others include Rulindo, Gakenke, and Gicumbi in northern province and Muhanga, Ruhango and Gisagara in the southern province. One of the key objectives of TSAM is to improve MNCH through community-based interventions using appropriately trained, mentored, and supported CHWs (TSAM, 2016). This project has implemented in the northern province and is now scaling up in the southern province. Unfortunately, there is little baseline knowledge about CHWs’ performance and job satisfaction in the provision
of CBMNCH, information that would be required before TSAM’s intervention to subsequently examine the impact made by the project post-intervention. It is in this context this study was designed to address this knowledge gap by examining CHWs’ job performance and job satisfaction prior to intervention in southern province. This study, therefore, seeks to answer the research question below.

1.2. Research questions

What are the determinants of CHWs job satisfaction as it relates to the provision of CBMNCH in Rwanda?

What are the correlates of CHWs performance in providing CBMNCH in Rwanda?

1.3. Objectives of the study

To investigate the determinants of CHWs job satisfaction as it relates to the provision of CBMNCH in Rwanda

To examine the correlates of CHWs performance in providing CBMNCH in Rwanda

1.4. The significance of the study

The findings from this will serve as a reference for managers of CHWs program and its stakeholders to design an appropriate program for training, mentorship, and support for CHWs to improve their skills and service delivery. Therefore, the CHWs will benefit from the findings from this study as their working condition and environments concerns were highlighted for further action by the concerned authorities. The findings from this study also help to gain insight into how the performance of CHWs can be improved to contribute to the realization of better informed, and more effective access to maternal and child healthcare in the rural communities, Rwanda. These results may also be the basis or reference for other scientific research on access to MNCH in countries with a similar context of Rwanda.
1.5. Organization of the thesis

This thesis is organized into five chapters:

The first chapter introduces the work in general. It provides the background within the study, the research questions, the objectives, the significance, and the organization of the thesis. The second chapter provides a literature review of the research previously done concerning CHWs and maternal, neonatal, and child health. The third chapter describes the methodology that was used. The chapter describes the study design, the study setting, the study population, the sampling methods, data collection methods and measurements, data analysis, and ethical consideration. The fourth chapter deals with the presentation and interpretation of results, while the fifth chapter presents the discussion of results, conclusions, and direction for future research.
Chapter 2

2. Literature review

2.0. Introduction

Ensuring universal access to Maternal, Neonatal, and Child Health care services is a cost-effective way of reducing morbidity and mortality for both mother and child (WHO, 2015). In line with the need to improve universal health coverage to deprived communities, the role of CHWs in rural areas in developing countries cannot be overemphasized. Given the reliance on CHWs for the provision of MNCH, it is crucial to understand the drivers of their job satisfaction and performance. Therefore, the exploration of the community based Maternal, Neonatal and Child Health care services is essential to understand the role of CHWs’ performance and its impact on key indicators and outcomes of Maternal, Neonatal, and Child Health. In this chapter, the author reviews the literature on Maternal, Neonatal, and Child Health. It reviews the literature on the barriers and facilitators for timely access to Maternal, Neonatal, and Child Health care in developing countries. In this chapter, the author also reviews the literature on CHWs in their broad context of community-based interventions for Maternal, Neonatal, and Child Health. Furthermore, the author discusses the reviews of the literature on the Rwandan community context

2.1. Overview of Maternal, Neonatal and Child Health

Although substantial progress in reducing maternal and child mortality has been made, Maternal, Neonatal, and Child Health remain weak in many developing countries. Mothers and children are most in danger of dying due to preventable causes, and this posed the challenging gap to achieve the Millennium Development Goals by 2015 (United Nations, 2015). For women from developing countries, their lifetime risk of dying is 1 in 180 women compared to 1 in 4900 women in developed countries (WHO, 2015). According to WHO (2015), about 5.6 million of the under-five children died by 2016. From this number, the developing countries account for 73.1 deaths per 1000 live
births, nearly 14 times the mean rate in developed with 5.3 deaths per 1000 live births. WHO also noted that if current trends continue, 60 million under-five children will die between 2017 and 2030, and newborns will be over half of them (WHO, 2015).

Straightforward attention to Maternal, Neonatal, and Child Health incited numerous worldwide initiatives, including the Partnership for Maternal, New-born, and Child Health launched by the WHO and UNICEF in 2005 (PMNCH, 2012). Recognizing the need for a global strategy for women's, new-born and children's health United Nations launched new “Every Woman, Every Child” 2016-2030, with one of the main objectives to improving service delivery (WHO, 2016). The assessment made after the 2015 agenda for Millennium Development Goals identified the need for changing agenda for “global health” and health in the context of “sustainable development” (World Health Organization, 2015). Evidence-based Maternal, Neonatal, and Child Health interventions are well-known (PMNCH, 2012) and feasible in resource-poor settings (Alkema et al., 2014). However, despite knowledge of adequate and appropriate interventions, ensuring universal access to essential Maternal, Neonatal, and Child Health services remain challenging in many Low and Middle-Income Countries. The next section review literature on barriers of access to Maternal, Neonatal, and Child Health care services, especially in the context of developing countries.

2.1.1. Barriers to accessing and utilizing Maternal, Neonatal and Child Healthcare

The Sustainable Development Goals underlines the need for increasing equitable access to quality health care to reduce maternal, newborn, and child mortality (WHO, 2015). Regardless of so much effort being put on enhanced access to maternal, neonate, and child health care, studies show that the majority of the developing countries, especially in sub-Saharan Africa, are faced with challenges. The common challenges are included but not limited to shortages of skilled health care providers, and they lack access to essential of life-saving prevention and treatment apparatuses, weak referral systems, absence of basic equipment and deficiency transport infrastructure (Kyei-Nimakoh, Carolan-Olah, & McCann, 2015; Puchalski Ritchie et al., 2016). In a literature review on
common barriers faced by many Low and middle-income countries to implementing maternal health evidence services, Puchalski Ritchie et al., (2016) argued that many barriers and facilitators for access to health care in a given low-income country are likely to be shared by countries with similar context. The same authors underlined the common barrier of access to health care include barriers at the health system level, mainly lack human resources and material, problems with communication and information sharing, and policy issues; at the provider level, common barriers were inadequate training, knowledge, and skills. Barriers at the patient and community level fell into two categories: lack of financial resources and patients’ knowledge, attitude, and beliefs (Puchalski et al., 2016).

2.1.2. Health Geography and Access to Health Care

Health Geography is a subfield of human geography that recognizes the importance of context and place in understanding health and determining health outcomes on both local and global scales. Health geography views health as encompassing society and space and conceptualizes the role of place and geography in health. It takes a more holistic perspective that is different from the frequent and dominant biomedical approach to health that continue to emphasize the absence of disease model of health (Dyck, 1999; Kearns & Moon, 2002). The study of health inequalities, the social construction of health and the consequences of spatial and social marginalization on health are among the important developments in health geography, as is the use of various models and theories to understand these relationships (Dummer, 2008). The now recognized conceptualization of place allows for making sense of the multifaceted relationships between the physical and social environments and how these impact health outcomes (Luginaah, 2009). Place and geographic contexts are now widely recognized as important influencers of health and thereby warranting the specific focus of context in the delivery of health care (Kearnes, 1993; Cummins, Curtis, Diez-Roux et al., 2007). Global, national and regional health geography research calls for careful consideration of the local contexts of places and people's everyday lives particularly when the aim is to improve community health and wellbeing (Woods et al., 2019).
Traditionally, research in health geography focuses on two general strands: the causes and spread of disease, and the planning and provision of health services (Luginaah, 2009). The latter includes care-seeking behaviour and access to and use of health services. This is one of the primary areas of study in health geography, and research on the topic is extensive. Research around health service use includes access to health facilities and health care providers, the use of services, geographical organization of care particularly inequalities in urban vs rural environments, inequalities in health outcomes, social and spatial polarization in health outcomes, among others. The geographic context of places and the connectedness between places are important as they play a role in shaping environmental risks, locating health care facilities, and targeting public health strategies. Inequalities in geographic access to health care may result from the placement of facilities, population distribution, transportation infrastructure and the availability of health care workers such as CHWs.

Various studies view access to health care services at various levels of adjustment between the population characteristics and the characteristics of health care resources (Da Silva, Contandriopoulos, Pineault, & Tousignant, 2011). Despite the suggestion that both resource and population characteristics could be adjusted to guarantee a continuum of access, only health care resources can be modified in the short term and general obstacles such as shortage of health care providers, cost of health care services, geographical transportation time, and waiting time which tend to be structural can be addressed by particular health care policies than the broad nature of the socio-economic characteristics of the population (Da Silva et al., 2011). It has, therefore, been argued that enhancing equitable access to quality medical services, needs national investments that bring health care services closer to those in most need (Rao & Pilot, 2014). In most developing countries, CHWs are being used to decentralize health care services in remote rural settings. As a result, they are geographically closer and readily accessible within rural settings, which also helps bridge socio-cultural and linguistic barriers to health care delivery (Kelly et al., 2001). CHWs directly targets geographic barriers in an attempt to improve access to health services and improve health outcomes that have been subpar in rural areas. Poor health experienced in rural Rwanda is associated with not only lacking health services, but also a myriad of social, cultural, political factors related factors the
confront CHWs within their geographic context. Health geography and its epistemology, therefore, lends itself to the study of rural health inequities, and how the contribution of CHWs can improve access to MNCH services and contribute to overall community health and well-being. The next section reviews the board context of CHWs program and its role in timely access to MNCH.

2.2. The Global Context of Community Health Workers

CHWs have been recruited, trained and utilized by Governments and non-governmental organizations for decades, with stimulus following the 1978 Declaration of Alma-Ata, which embraced essential medicinal services as a vehicle to enhance community health care services (Beard & Redmond, 1979; Standing & Chowdhury, 2008). In this study, the CHW was defined according to these characteristics identified by WHO: CHWs are people from their local communities who are recruited and supported by the health system; they receive less training than formally trained health workers; they tend to be in remote rural settings which helps bridge socio-cultural and linguistic barriers to health care delivery. They are relied upon for decentralizing healthcare services (Kelly et al., 2001; American Public Health Association, 2013). In line with this definition, however, there is a difference of CHWs in term of selection, type of training, and amount of interventions and supervision, both within and across countries. Evidence from the literature shows that there have been success stories of community-based interventions provided by CHWs in addressing community health problems (Lewin et al., 2010; Condo et al., 2014).

CHWs form the first group of health workers with a unique intermediary position between communities and the health sector in delivering promotive, preventive, and limited curative health services (Lewin et al., 2010). The common CBMNNCH services provided by CHWs which reported in the literature included but not limited to detection of high-risk pregnancies and late post-partum complications so that timely referral can be made, promotion of appropriate care-seeking behavior and antenatal care during pregnancy, promotion of reproductive health and family planning, promotion of postpartum care, promotion of immunization according to national guidelines, provide of limited curative health care services, promotion of healthy behaviors and social welfare,
provide preventive health care services (Boone et al., 2016; Condo et al., 2014; Jarvis & Termini, 2012; Kate Hawkins, 2016; Lewin et al., 2010; Puchalski Ritchie et al., 2016; Sanou et al., 2016; Singh, Cumming, & Negin, 2015; UNAIDS et al., 2015). These critical areas of interventions depend on the country and the particular setting. Despite the defined areas of intervention by CHWs, it has been shown that sometimes, they perform poorly in a wide range of different tasks that can be preventive or curative (American Public Health Association, 2013; Kok et al., 2017). Therefore, understanding the barriers and facilitators of community-based interventions provided by CHWs could help to address this knowledge gap for better improvement of MNCH.

2.3. Factors influencing community health worker`s job performance

The definition of a CHW`s performance and its explanatory factors are not different from what applied to other healthcare providers. The well-performing health care providers work in ways that are responsive, reasonable, and effective to accomplish the best health outcomes possible for clients, given circumstances and resources (WHO, 2006). However, studies done on health workers’ performance argued that improving the performance of health care provider in developing countries is complex, due to the intersection of several explanatory factors that impact health care providers’ capacity and willingness to do their work (Franco, Bennett, & Kanfer, 2002).

The intricacy of CHW`s performance lies within a large number of influencing factors such as at the individual level with different interrelated traits, such as competencies, guideline adherence, motivation and job satisfaction (Kok et al., 2015; Kok, Broerse, et al., 2017). Besides, Kok et al. (2015) found that several intervention design factors, for example, training, supervision or mentorship, support, logistics and supplies, incentives and communication structures, influence performance of CHWs. Studies discovered contextual factors that impact the performance of the CHW. These include but not limited to cultural norms, the environment, and geographical accessibility, recruitment
or selection systems, volunteering, and health system policy (Kok, Dieleman, et al., 2015; World Health Organization, 2010; Jaskiewicz & Tulenko, 2012).

2.4. Theoretical concepts of motivation, job satisfaction and job performance

In general, it has been observed that employees who are highly satisfied with their jobs are more likely to put in extra efforts to contribute to the efficiency and effectiveness of their work. In this regards, better performance will be influenced by job satisfaction and the employees will be more involved in their work (Thiagaraj, 2017).

Theories of job satisfaction guide to the identification of factors that influence job satisfaction and what could be done to increase employees` satisfaction (Nawaz, 2016). An example is Frederick Herzberg`s motivation-hygiene theory, also known as the Two-Factor Theory of motivation. Herzberg (1965) identified two factors that influence employee motivation and satisfaction. First, are the motivator factors which are factors that lead to employee satisfaction and motivate employees to work harder. With CHWs, some examples might include enjoying the work they are doing within their local communities and that they were elected by their local community members. The second group of factors are called hygiene factors. These factors would include incentives, salary, benefits, and relationships with managers and co-workers. These factors can lead to dissatisfaction and a lack of motivation if they are absent. According to Herzberg`s theory, while motivator and hygiene factors both influenced motivations, they appeared to work completely independently of each other. While motivator factors increased employee satisfaction and motivation, the absence of these factors may not necessarily cause dissatisfaction. Likewise, hygiene factors didn`t appear to increase satisfaction and motivation, but their absence caused an increase in dissatisfaction (Nawaz, 2016). Job dissatisfaction and satisfaction as two categories are not, therefore, to be diametrically different ends of the same continuum, but that they are two concepts and distinct notions, sometimes even independent (Nawaz, 2016). In a study aimed at identifying employees would want and determinants of their motivation, Nawaz (2016) discovered that different factors were associated with employee dissatisfaction and satisfaction. For example, a
person could identify ‘low wages’ as a cause of dissatisfaction, without necessarily mentioning ‘high wages’ as a cause of satisfaction. Alternatively, several factors such as recognition, achievements and accomplishment were reported as the cause of satisfaction and motivation. These responses have been compiled and classified and shown in Figure 1 (Herzberg, 1965)

Figure 1: Models of job satisfaction Two-Factor Theory (Motivator-Hygiene Theory)

According to Thiagaraj (2017), the presence of maintenance factors will not motivate employees but must be present, as they give employees of an organization an almost neutral feeling, but their absence can lead to dissatisfaction. The next group factors are categorized as work content factors (e.g. promotion, recognition, achievement, etc...) which are the real motivators; because they can lead to satisfaction.
Herzberg’s theory was criticized on several fronts including the foundation of his initial research used to develop the theory and the fact that evidence from literature indicates that one factor can influence job dissatisfaction for one person and job satisfaction to another. Nevertheless, Herzberg’s two-factor theory has contributed to techniques of designing or enriching the work and how motivation can lead to performance (Thiagaraj, 2017).

Job performance assesses whether a person performs a job well. Regarding CHWs, performance is an important criterion for maternal and child health outcomes. More generally, job performance is conceptualized as a multidimensional construct consisting of more than one kind of behaviour. According to Campbell et al. (1993), one can distinguish between a process aspect (i.e., behavioural) and an outcome aspect of performance. Campbell (1990) proposed an eight-factor model of performance that aims to capture dimensions of job performance. An important factor is the specific task individuals undertake as part of their jobs. Another factor identified by Campbell are the non-task specific behaviours that individuals must undertake which do not pertain only to a particular job. In term of CHWs, for instance, an example of a task-specific behaviour would be identifying a pregnant woman in their local community and provide support to them. A non-task specific behaviour of a CHW may be organizing local community meetings on public health issues.

Another factor identified as important for job performance is the ability to communicate important messages to various audiences. With CHWs, for instance, the ability to communicate the health information to mothers in the Rwanda context is needed. Also, based on Campbell’s framework, an individual CHW’s performance can be assessed in terms of effort (accompanying pregnant women to health centers, walking long distances to see clients), either day to day, or when there are extraordinary circumstances when they have to use their monies to help community members. This factor reflects how much people commit themselves to job tasks. Related to this is the notion of being in good standing with the law and also within the local community. With CHWs, they are normally elected by the communities, and this recognition can go a long way in reinforcing their job performance.
In jobs such as CHW where people work closely or are highly interdependent, performance may include how much a person helps out the groups and his or her colleagues. CHWs are expected to collaborate with their colleagues and staff at the Health Centers. As local representatives, they are recognized role models and can give advice and helping to maintain community health goals. Similar to all jobs, there also be a supervisory or leadership component. For CHWs, they are expected to report to the health staff above them, with their work being supervised to ensure they are meeting their main objectives. Along with supervision is the managerial and administrative performance (e.g., CHW record keeping) that comes with specific jobs. Such administrative tools can be sued to monitor progress. Generally, Campbell’s theory of job performance has been used to explain the factors that influence job performance in different areas (Boset, Asmawi, & Abedalaziz, 2017). Therefore, in the domain of healthcare delivery, there are different factors which affecting CHWs’ job performance, which is one of the focus of the present study.

2.5. The factors of CHWs’ job satisfaction

Due to the shortage of health worker, especially in rural areas, the CHWs play an essential role as instrumental to the ability to meet healthcare needs. However, many studies have found that the continued success of community-based interventions in low-resource communities rely on CHWs’ satisfaction, many of whom are volunteers (Kok et al., 2015; Mpembeni et al., 2015; Ludwick, Brenner, Kyomuhangi, & Wotton, 2013; Rahman et al., 2010; Bhattacharyya K, Peter W, LeBan K, 2001). Identifying factors related to the satisfaction of CHWs is a crucial element to plan a long-term success. Like other healthcare providers, CHWs’ job satisfaction is influenced by several factors. The analysis of factors influencing healthcare providers’ job satisfaction in previous studies resulted in factors being identified in negative or positive ways.

The common identified factors include the financial incentives, and non-financial incentives (Zhang et al., 2016; Kok et al., 2015; Mpembeni et al., 2015; Ludwick, Brenner, Kyomuhangi, & Wotton, 2013; Rahman et al., 2010; Bhattacharyya K, Peter W, LeBan K, 2001; Zhang et al., 2016). In term of financial incentives, previous studies
argued that the provision of financial incentives is vital for CHWs. The majority of respondents in previous studies were dissatisfied or reported satisfaction with their financial rewards (Zhang et al., 2016; Bhattacharyya, Peter, LeBan, 2001; Kok et al., 2015). In Rwanda, although CHWs are volunteers, in 2009, the Ministry of Health introduced community performance-based financing to motivate CHWs. CHW are organized in groups of Cooperatives that receive and share funds from the Ministry of Health based on their achievement of targets set by the Ministry of Health. By linking the financial incentive to performance, the Ministry of Health hopes to improve the utilization and quality of healthcare services (Rusa, Schneidman, Fritsche, & Musango, 2009). However, financial difficulties remain among the challenges faced by the Rwanda CHWs program in supporting and continuing to build the capacity of CHWs as their scope of work expands (Crigler, 2018). The common non-financial incentives identified in previous studies associated with job satisfaction among healthcare providers include work itself, infrastructure, frequent supervision and continuous training, community recognition, respect, acquisition of valued skills and career development, personal growth and development, accomplishment, peer support and interpersonal relationships, and community factors like relations with community leaders (Zhang et al., 2016; Kok et al., 2015; Mpembeni et al., 2015; Bhattacharyya K, Peter W, LeBan K, 2001; Ludwick et al., 2013; Gopalan, Mohanty, & Das, 2012). As an example, In Mpembeni et al. (2015), the exploratory factor analysis of satisfaction according to the job attributes resulted in factors being identified in positive and negative ways. These included the availability of registers and job aides, support received, training, availability of transportation, and capacity of CHWs to provide services (Mpembeni et al., 2015a). To this regard, in Rwanda, National Community Health Strategic Plan July 2013–June 2018 stated that CHWs are supposed to be trained in CBMNCH by preparing them to be first responders to several MNCH needs and to be adequately equipped to perform their duties. Each CHW is also supposed to be supervised by the in-charge of Community Health from HC every month, where the refresher training is provided through a supportive supervision model to strengthen the CHW’s knowledge and skills in providing quality community-based healthcare services.
In conclusion, the findings from the previous studies suggest that satisfaction could be improved by providing a more holistic combination of financial and nonfinancial incentives. Therefore, an improved understanding of CHWs as a heterogeneous group with nuanced needs and different ambitions is vital for ensuring the sustainability of the program.

2.6. Overview of community context

Rwanda is a landlocked and mostly mountainous country in East Africa of about 26,338 km². The country’s population is estimated at 12.63 million people. The country consists of four provinces (Eastern province, Western Province, Northern Province, and Southern Province), besides Kigali City. Each province is divided into districts. The districts are subdivided into sectors, which are also subdivided into cells typically made up of a number of villages. Rwandan estimated population density is 415 people/km² (National Institute of statistics, 2015). According to the recent Rwanda demographic and health survey 2014-2015 population growth account for 2.6% per annum, with average fertility of 4.2 children for a Rwandan woman (National Institute of statistics, 2015).

The structure of healthcare system shows that provision of health services is made at different levels including referral hospitals, provincial hospitals, district hospitals, health centers, health posts, and primary health care in communities (Crigler, 2018). At the community level, community health managers in health centers administratively oversee the CHWs. At the Health Centre level, there is a health center committee that oversees the work of different units of the health center, their scope, their oversight activities, and the overall financial control. Each district has a district hospital where clinical activities are reported to the district hospital director, while other administrative issues are under the supervision of the Social Affairs staff in the district. Within each district, the District Health Unit provides health services throughout the district. It is also in charge of planning, monitoring, and supervision of executive agencies and intersectoral collaboration with stakeholders who operate in the district (through the Joint Action Development Forum or JADF). The referral hospitals are at the national level. The national referral hospitals receive patients transferred by district hospitals for
medical or surgical conditions requiring advanced care (Crigler, 2018; Ministry of Health of Rwanda, 2013).

CHWs are formally part of the strategic health plan, and the CHW program is coordinated by the Community Health Bureau of the Ministry of Health. The goal of creating a community health program was to improve access to health services by bringing services closer to the communities while addressing the labour shortage of health care providers. Time after time, both the number of promotional health services provided by CHWs and their number have increased. In each village, there is a pair of one woman and man called “binomes” who are in charge of “Integrated Community Case Management” of childhood illness and one woman called “ASM” (Animatrice de santé maternelle) who is responsible for maternal and newborn health (Crigler, 2018).

The CHWs are voted by village members where they live. To be voted, CHW must be at least 20 years old up to 50 years old. He or she should be able to read and write. They should also be willing to volunteer and be regarded as honest and trustworthy by their peers. Election process involves gathering the villagers and volunteers, and the community members lining up in front of the person they support. The person with maximum support is recruited (Crigler, 2018; Ministry of Health of Rwanda, 2013). Together, the CHWs` cell coordinator and the in-charge of community services at HC supervise the CHWs. During this supportive supervision, CHWs are supposed to receive refresher training to strengthen their knowledge and skills for the provision of quality community-based health services (Crigler, 2018; Ministry of Health of Rwanda, 2013). Since decentralization began in 2005, maternal and child health has been a top priority for the Ministry of Health. Much attention has been paid to the basic needs of maternal and child health needs. The training of ASMs, therefore, is focused on identifying pregnant women and on regularly monitoring them during pregnancy and after birth, and to encourage births in health facilities where qualified healthcare providers are available. Besides the follow up of women during pregnancy and the newborns, the children are also screened for malnutrition. ASMs provide some contraceptives (such as pills, injectables, condoms, and cycle beads), promote the prevention of non-communicable,
and carry out home visits. As the CHWs provide community-based health services on a volunteer basis, they receive financial incentives through “performance-based financing (PBF)” for the provision of a number of health services. 30% of the total funds are distributed among CHWs, while 70% of PBF is deposited in the CHWs` cooperative (Crigler, 2018; Ministry of Health of Rwanda, 2013).
Chapter 3

3. Methodology

This chapter discusses the study settings and design, study population and sampling methods, and data collection methods and measurements used in this study. The chapter also presents data analysis and ethical consideration.

3.1. Study setting and design

The quantitative cross-sectional study design was chosen because it is appropriate to get the point by point descriptive information from participants and to facilitate the generalization of research results to other groups of CHWs (DePoy & Gitlin, 2016). This study was conducted in three districts (working area for the TSAM project) selected from eight districts in the southern province by the Ministry of Health due to their high maternal, neonatal and child health needs. The districts were Gisagara, Ruhango, and Muhanga district.

Figure 2: Study settings
Muhanga district is one of the eight districts comprising the Southern Province. It is divided into 12 sectors which are subdivided into 63 cells and 331 villages. The district of Muhanga is in 50 km on the road from Kigali to the southern (Muhanga district, 2013). According to the district development plan (2013-2018), Muhanga district had 319,141 residents, women (51%) and men (49%). The district’s population is mainly rural (84.1%). Due to the high elevation and mountains, the regrouped habitat mode is virtually nonexistent except in trading centers. Thus, 76.7% of residents are living in isolated houses in rural areas, while 11.2% are living in unplanned clustered houses. The rest of the residents are living in agglomeration or unplanned urban settlement. The district of Muhanga lacks transportation facilities, with 67.5% of the households reporting being dissatisfied with their roads. Overall, 87.1% of households have to travel about 19 minutes to get to the nearest paved road and 11.9% within 20-59 minutes (National Institute of Statistics of Rwanda, 2012).

In health, Muhanga district has one district hospital (Kabgayi Hospital), and each sector has at least one health center, and the health insurance coverage is about 91.1% of the total population. In term of maternal health, 76.2% of all pregnant women deliver in a health facility. 87.3% of all under-five children received all basic vaccination. The malnutrition status of under-five children is still high, where stunting account for 46.2% while wasting account for 1.4% (Muhanga district, 2013).

The district of Ruhango is also in the Southern Province, shares its border with the district of Muhanga to the north. The district of Ruhango has 9 sectors, 59 cells, and 533 villages. It covers an area of 626.8 km². According to the Population and Housing Census (2012), 91.9% of residents in Ruhango district (total population 319,885 inhabitants – 52.4% women and 47.6% men) live in rural areas. The mean household size in the district of Ruhango 4.2 persons. 54.4 % of residents are living in isolated houses in the rural areas while 36.7% are living in a clustered rural settlement, and 7.9% are living in spontaneous/squatter housing (National Institute of Statistics of Rwanda, 2012; Ruhango district, 2013).
Regarding the healthcare provision, Ruhango district has two hospitals, which include Ruhango district Hospital and Gitwe Hospital. Each sector has at least one health center. In terms of healthcare providers, Ruhango district development plan (2013-2018) shows that one medical doctor cares for 23001 inhabitants, more than double the number of inhabitants required by the national standards. One nurse cares for 1073 inhabitants, slightly higher than the national standard of 1,000 inhabitants, and a midwife serves 35,780 inhabitants, where the national standard being one midwife per 25,000 inhabitants (District de Ruhango unite santé, 2013).

Gisagara District lies just to the East of Huye city (former Butare city) and along the border of Burundi Republic. The district of Gisagara comprises 13 sectors which are divided into 59 cells and 524 villages. Gisagara District covers an area of 679 km². The population of Gisagara district is also mainly rural (98.4%). With a total population of 322,506 inhabitants Similar to the other districts, there are slightly more women (53.3%) than men (46.7%) in this district. The mean household size in the district of Gisagara is 4.2 person, while the population density is 475 inhabitants/km². 50% of residents are living in clustered rural settlement while 45.4% are living in dispersed/isolated rural housing, and 3% are living in spontaneous/squatter housing (National Institute of Statistics of Rwanda, 2012).

Gisagara district has two district hospitals -Gakoma hospital and Kibirizi hospital, and each sector has at least one health center. According to Integrated Household Living Conditions Survey (2010/2011), the average travel time to a health center (one way on foot) in the district of Gisagara is 70 minutes and 65.1% of households use at least 60 minutes and above on average to travel to a health center (National Institute of Statistics of Rwanda, 2011).

3.2. Study population and sampling methods

The study population comprised CHWs within geographically distinct catchment areas. With the collaboration between TSAM project and MoH Rwanda, through Rwanda Biomedical Centre (RBC), the sampling frame was obtained from the RapidSMS database. RapidSMS is an open-source platform technology of information through
mobile technology innovation. RapidSMS allows CHW to collect data on pregnant and postpartum women and children aged less than two years. CHW sends data collected through text messages on a mobile phone to a central server of the department hosting the RapidSMS application at the Ministry of Health. CHW then receives automated feedback to confirm the reception of every sent text message and the corresponding measures to be taken (MoH, 2013). All CHWs who are active are included in this database with information including their contacts, village, health center, district, and province to which they are attached. At the time of the survey, the database included 1388 CHWs who provide community-based MNCH interventions in the three study districts. The fundamental factor considered in determining the sample size was the need to maintain a good and manageable sample, and this enabled the researcher to draw detailed data at an affordable cost in terms of time, finance, and resources (Creswell, 2013). In this study, as the population size for CHWs is large, the minimum representative sample was determined using a web-based calculator for sample size (http://www.raosoft.com/samplesize.html), with a confidence level of 95% and α error probability 0.05 applied to the population of 1388 CHWs, a sample size of 301 CHWs was calculated as the minimum sample threshold for unbiased findings for this research.

The detailed formula for sample size calculation at a confidential level of 95% is below

\[ S = \frac{(Z)^2 \times (p \times (1 - p))}{(e)^2} \div 1 + \left( \frac{(Z)^2 \times (1 - P))}{(e)^2 N} \right) \]

Where

S= Sample size

Z= Z-Score determined based on confidential interval. Here the Z-score at the confidential level at 95% equal to 1.96

p= Population proportion (assumed to be at 50%=0.5)

e= Margin of error (based on a confidential level at 95%, the margin error equal to 0.05)

\[ S = \frac{(1.96)^2 \times (0.5 \times (1 - 0.5))}{(0.05)^2} \div 1 + \left( \frac{(0.5)^2 \times (0.5 (1 - 0.5))}{(0.05)^2 \times 1388} \right) = 301 \]
At the district level, the sample size in each district was calculated based on district proportionate allocation sampling technique, “probability proportional to size” (Kothari, 2004):

\[ ni = n \cdot \frac{NJ}{N} \]

Where \( ni \) = sample size of every district; \( n \) = sample size of the entire target population (301 CHWs), \( NJ \) = number of population (CHWs) of the district: Gisagara with 524; Muhanga with 331; Ruhango with 533; \( N \) = total of the target population (1388 CHWs).

Even though the estimated minimum sample size was 301, we oversampled by 200 to give the sample size more power. The price of this increased power is that as \( \alpha \) goes up, so does the probability of a Type I error should the null hypothesis be correct. As the sample size increases, so does the power of the significance test because a larger sample size narrows the distribution of the test statistic (Floyd Bullard, 2018). Therefore, increasing the sample size to 500 gave higher power to detect whether there is a difference in the proportion of CHWs’ performance.

Systematic random sampling was used to select the study sample of CHWs from the total population of CHWs. According to Kothari (2004), this method is useful when the sampling frame is available in a list. The list of all CHWs in each district was provided by RapidSMS database. Then, according to Morin, cited in Vaillant (2005), these steps were followed: first, we determined the interval of sampling (K) by dividing the number of elements in the study population (N) by the size of the sample (n) that we want to obtain= \( K = \frac{N}{n} \), that means the interval ratio of \( \approx 5 \) (1388/301) was used to select CHWs to participate in the study. Second, a random number between 1 and K (5) was selected, and this number (d) was the origin and was the first element to be included in the sample, and each K element was selected after this first element. Thus, a random number 3 was the first number at the beginning of data collection. The 2\textsuperscript{nd} participant was the number 8 on the list; the 3\textsuperscript{rd} participant was number 13 on the list; the 4\textsuperscript{th} participant was number 18 on the list and so on until the entire sample was selected. The next CHW on the list replaced CHW who did not consent to participate or was absent during the data collection period.
3.3. Measurements and data collection methods

For data collection, a comprehensive questionnaire for CHWs was developed (appendix). This questionnaire was designed from previous CHW studies in Rwanda and elsewhere and is therefore not a standardized instrument. The survey collected data on (a) demographic and socio-economic characteristics, including age, gender, education, marital status, residence, SES, household size, income generating activities, occupation, communication means, and transport means; (b) work related experiences including specialization of CHW, how long they have been working as CHW, how often they do community health job, when they mostly do community health work, average time usually spend travelling to the farthest house in the village (minutes) on-foot (one way), the number of households that a CHW is responsible for, the average number of hours spent each week on planned activities, the average number of clients served in any month, and average time usually spend to travel from CHW’s house to the Health Center (minutes) on-foot (one way); (c) CHW’s supervision and support; (d) information on training; (e) challenges and facilitators when doing community health work; (f) CHW’s job satisfaction and motivation; (g) CHW’s knowledge of maternal, newborn and child health; (h) CHW’s performance. The researcher collected data from June 2018 to September 2018. The questionnaire was interviewer-administered, whereby, questions were asked face-to-face and responses recorded on the questionnaire. The questionnaire was approximately 45 minutes long. Data collection took place at health facilities. Participation in the research was voluntary. Thus, potential participants had to sign a consent form. The consent form explained the obligation of the study to protect the anonymity and confidentiality of the study participants and the right of participants to choose not to answer any question or withdraw at any time as outlined in the ethics guidelines (appendix). The research poses no risk to participants. The completed survey was transported in safe and secured bags to Western University for analysis.

The measurement scales used involved both continuous and categorical variables. The performance scores of CBMNH activities were estimated based on how often CHWs reported performing these activities. Each activity was scored on a 5 points scale with five always, four often, three sometimes, two rare, and one never. While satisfaction and
motivation scores were estimated based Likert scale, (5) strongly agree, (4) agree, (3) neutral, (2) disagree, and (1) strongly disagree. Besides, knowledge scores were estimated based on a number of correct answers given to knowledge question (appendix). The Cronbach’s alpha was used to generate CHW job performance, job satisfaction, motivation, and knowledge scales by aggregating items/questions that assessed these variables. Regarding the research questions of this study, the researcher further categorized the CHWs’ job performance scale and CHWs’ job satisfaction (which ranged from 1-5) into a dichotomous distribution (1-2=poor performance/low job satisfaction and 3-5=better performance/high job satisfaction). Informed by the literature on job performance in the health sector (Chipukuma et al., 2018; Kok, Kane, Tulloch, Ormel, Theobald, Dieleman, Taegtmeyer, Broerse, et al., 2015), and drawing insights from the literature on job satisfaction (Bello, Ajayi, & Asuzu, 2018; Blaauw et al., 2013; Kumar, Ahmed, Shaikh, Hafeez, & Hafeez, 2013), I introduced structural and individual-level factors (Table 3.1).

Table 3.1: Measurements of variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variables</strong></td>
<td></td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>1= high</td>
</tr>
<tr>
<td></td>
<td>2= middle</td>
</tr>
<tr>
<td></td>
<td>3= low</td>
</tr>
<tr>
<td>Performance</td>
<td>1= high</td>
</tr>
<tr>
<td></td>
<td>2= middle</td>
</tr>
<tr>
<td></td>
<td>3= low</td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
</tr>
<tr>
<td>Structural factors</td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td>1= high</td>
</tr>
<tr>
<td></td>
<td>2= middle</td>
</tr>
<tr>
<td></td>
<td>3= low</td>
</tr>
<tr>
<td>Knowledge</td>
<td>1= high</td>
</tr>
<tr>
<td></td>
<td>2= middle</td>
</tr>
<tr>
<td></td>
<td>3= low</td>
</tr>
<tr>
<td>Individual supervision</td>
<td>1= never</td>
</tr>
<tr>
<td></td>
<td>2= Once a year</td>
</tr>
<tr>
<td></td>
<td>3= Few times a year</td>
</tr>
<tr>
<td></td>
<td>4= Once a month</td>
</tr>
<tr>
<td>Training on CBMNCH</td>
<td>1= Yes</td>
</tr>
<tr>
<td></td>
<td>2= No</td>
</tr>
<tr>
<td>Peer support</td>
<td>1= Yes</td>
</tr>
<tr>
<td></td>
<td>2= No</td>
</tr>
<tr>
<td>Individual-level factors</td>
<td>1=category 1</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>socioeconomic status (Ubudehe category)</td>
<td>1=category 1</td>
</tr>
<tr>
<td>Age in years</td>
<td>1=35 years and below</td>
</tr>
<tr>
<td>Marital status</td>
<td>1=married</td>
</tr>
<tr>
<td>Level of education</td>
<td>1=primary</td>
</tr>
<tr>
<td>Occupation</td>
<td>1=smallholder farmer</td>
</tr>
<tr>
<td>Household size</td>
<td>1=less than 5 members</td>
</tr>
</tbody>
</table>

3.4. Validity

The validity of an instrument determines the extent to which it reflects or can measure the construct being examined. Validity refers to how much an instrument
measures what it is supposed to be measuring (Kohnehshahri, Salimi, Mohaddecy, & Shirazian, 2011). In this study, the content validity (Atwater et al., 1994) was used to assess the validity of the instruments through assessing the adequacy, appropriateness, inclusiveness, and relevancy of the questions to the subject under study, where the research was presented to the team of TSAM expert to discover whether the content is relevant in comparison with the research objectives and the context to ensure this validity. Then, the research was presented to two Ethics Committees (Western University and the University of Rwanda) for approval.

### 3.5. Reliability

The reliability refers to the accuracy and consistency of information obtained in a study. The reliability of any measurement refers to the extent to which it is a consistent measure of a concept and Cronbach’s alpha is a commonly used technique for measuring the strength of that consistency (Peterson, 1994). Cronbach’s alpha is a measure used to assess the reliability, or internal consistency, of a set of scale or test items (Cortina, 1993). In this study, the internal consistency of the items of four scales was measured, including performance, motivation, satisfaction, and knowledge scales (Cortina, 1993). Many sources say that Cronbach’s alpha greater than 0.90 is excellent, 0.80 or higher is good, 0.70 or above is acceptable, 0.60 or above is questionable, 0.50 or above is poor, and less than .50 is unacceptable (Taber, 2017). In this study, the reliability coefficient for performance scale shown a Cronbach’s alpha of 0.93, reliability coefficient for satisfaction scale shown a Cronbach’s alpha of 0.88, reliability coefficient for knowledge scale shown a Cronbach’s alpha of 0.83, and the reliability coefficient for the motivation scale shown a Cronbach’s alpha of 0.84 after the deletion of item 3, item 8 and item which show that Cronbach’s Alpha would be improved if Item Deleted (George & Mallery, 1995)

### 3.6. Data analysis

Data were analyzed using Stata version 15 in an encrypted and password, protected computer, and hard drive. The univariate analysis examined patterns,
distributions, and associations within the data. To respond to the research questions, bivariate and multivariate analyses were employed to understand the correlates of performance and determinants of job satisfaction among CHW. Since the dependent variables (performance and job satisfaction) are ordinal, the research used ordinal logistic regression analysis, which is suitable for an ordered dependent variable. The multivariate models were built sequentially. The researcher accounted for structural variables in Model 1 and individual-level variables in Model 2. Findings were reported in odds ratios (ORs) where an OR larger than 1 indicates higher odds of reporting job satisfaction, while an OR smaller than 1 indicates lower odds of reporting job satisfaction. A significance threshold of 5% and confidence intervals of 95% were used.

3.7. Ethical Considerations

Ethical approval for the study was obtained from both the Research Ethics Board at the University of Western Ontario, Canada (appendix) and the College of Medicine and Health Sciences Institutional Review Board (IRB), at the University of Rwanda (appendix). The authorization to conduct the study locally was granted through the districts (appendix). Before the study, informed written consent was obtained from CHWs with the option to withdraw at any time during the study (appendix).
Chapter 4

4. Results

4.0. Introduction

To understand the role of CHWs for timely access to MNCH for rural communities in three selected districts in the Southern province, Rwanda, the researcher conducted the CHWs Survey. In this chapter, the results of the study are presented, starting with the sample characteristics and some descriptive statistics. The rest of the results are then presented in two major sections focusing on the determinants of CHWs job satisfaction, and the predictors of CHWs performance on the job.

4.1. General Characteristics of surveyed CHWs

In this section, the researcher presented the general characteristics of surveyed CHWs who provide CBMNCNCH within the geographical boundaries of Gisagara district, Muhanga district, and Ruhango district, a Southern province in Rwanda. Results show that all CHWs who provide CBMNCNCH in rural communities of the studied area are all female. The general characteristics of the study sample are presented in Table 4.1.
Table 4.1: Description of general characteristics of surveyed CHWs (n=500)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHW’s satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>170</td>
<td>34.00</td>
</tr>
<tr>
<td>Middle</td>
<td>155</td>
<td>31.00</td>
</tr>
<tr>
<td>High</td>
<td>175</td>
<td>35.00</td>
</tr>
<tr>
<td>CHW’s performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>163</td>
<td>32.60</td>
</tr>
<tr>
<td>Middle</td>
<td>176</td>
<td>35.20</td>
</tr>
<tr>
<td>High</td>
<td>161</td>
<td>32.20</td>
</tr>
<tr>
<td>CHW’s motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>153</td>
<td>30.60</td>
</tr>
<tr>
<td>Middle</td>
<td>111</td>
<td>22.20</td>
</tr>
<tr>
<td>High</td>
<td>236</td>
<td>47.20</td>
</tr>
<tr>
<td>CHW’s knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>151</td>
<td>30.20</td>
</tr>
<tr>
<td>Middle</td>
<td>176</td>
<td>35.20</td>
</tr>
<tr>
<td>High</td>
<td>173</td>
<td>34.60</td>
</tr>
<tr>
<td>Individual supervision from HC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>121</td>
<td>24.20</td>
</tr>
<tr>
<td>Once a year</td>
<td>233</td>
<td>46.60</td>
</tr>
<tr>
<td>Few times a year</td>
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<td>21.60</td>
</tr>
<tr>
<td>Once a month</td>
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<td>7.60</td>
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<tr>
<td>Receiving contra-reference</td>
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<tr>
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<tr>
<td>Formal training on CBMNCH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>369</td>
<td>73.80</td>
</tr>
<tr>
<td>Yes</td>
<td>131</td>
<td>26.20</td>
</tr>
<tr>
<td>Peer support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>55</td>
<td>11.00</td>
</tr>
<tr>
<td>Yes</td>
<td>445</td>
<td>89.00</td>
</tr>
<tr>
<td>Access to assessment tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All are available</td>
<td>136</td>
<td>27.20</td>
</tr>
<tr>
<td>Few are missing</td>
<td>126</td>
<td>25.20</td>
</tr>
<tr>
<td>Many are missing</td>
<td>65</td>
<td>13.00</td>
</tr>
<tr>
<td>All are missing</td>
<td>173</td>
<td>34.60</td>
</tr>
<tr>
<td>Access to registers and education tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All are available</td>
<td>107</td>
<td>21.40</td>
</tr>
<tr>
<td>Few are missing</td>
<td>224</td>
<td>44.80</td>
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<tr>
<td>Many are missing</td>
<td>167</td>
<td>33.40</td>
</tr>
<tr>
<td>All are missing</td>
<td>2</td>
<td>0.40</td>
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<td>Access to protective materials</td>
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<tr>
<td>All are missing</td>
<td>500</td>
<td>100.00</td>
</tr>
<tr>
<td>Average time spent to travel to HC</td>
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<td>60-120 minutes</td>
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<td>42.60</td>
</tr>
<tr>
<td>Over 120 minutes</td>
<td>210</td>
<td>42.00</td>
</tr>
<tr>
<td>Number of Households that CHW is</td>
<td></td>
<td></td>
</tr>
<tr>
<td>responsible for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 125 households</td>
<td>122</td>
<td>24.40</td>
</tr>
<tr>
<td>CHW's Household size</td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>Less than 5 members</td>
<td>108</td>
<td>21.60</td>
</tr>
<tr>
<td>5-6 members</td>
<td>133</td>
<td>26.60</td>
</tr>
<tr>
<td>7-8 members</td>
<td>135</td>
<td>27.00</td>
</tr>
<tr>
<td>Over 8 members</td>
<td>124</td>
<td>24.80</td>
</tr>
</tbody>
</table>

Table 4.1 shows that the estimated overall level of CHWs’ job satisfaction, 35%, 31% and 34% for high, moderate, and low job satisfaction respectively. In terms of job performance, 32.2%, 35.2, and 32.6% of CHWs reported high, moderate, and low job performance,
respectively. Nearly half (47.8%) of CHWs reported being highly motivated to do their CBMNCH. But 22.2% and 30.6% reported moderate and low motivation, respectively. In assessing CHWs knowledge of MNCH, 34.6%, 35.2%, and 30.2% indicated high, moderate, and low knowledge, respectively. The results show that 24.2% of CHWs did not receive any individual supervision from the HC since they started to work as CHW, with 46.6% receiving individual supervision only once a year. Besides, 59.8% of CHWs reported that they have never received feedback for patients transferred to a Health Center. In term of training, 73.8% of CHWs received formal training in CBMNCH; of this, 58.2% received formal training before working as CHWs. The results also show that there was good collaboration among CHWs, with 89% of them reporting having received peer support. Regarding the availability of materials, only 21.4% of CHWs reported that they have all the necessary registers and education tools they need for their work, and only 27.2% of CHWs reported they that have all the necessary assessment tools.

Overall, CHWs reported they do not have protective materials. As per their mandate, CHWs were sometimes required to accompany clients to a Health Center. The results show that the average travel time to HC was 94 minutes. Also, the mean number of households that CHW is responsible for are 172 households, with CHWs reporting serving an average of 27 clients per month. About 80% of CHWs had over four years of working experience. Only 15.2% of CHWs received in-kind payment for their services. 31.8% of CHWs were members of a local level for profit cooperative. In terms of socioeconomic status, the Rwandan Ubedehe categorization was used, where category 1 comprises people with no means to own or rent homes of their own and can hardly put food on the table, the second category comprises people who have limited part-time jobs and either own cheap houses or can pay rent, the third category comprises people who do not need help from the Government for survival, and the fourth category comprises people deemed rich such as government officials from the level of director upwards, and large business owners (Dushimimana, 2019). Therefore, the results show that 6.4% of the sample are in category 1, whereas 40% and 56% are in category 2 and category 3, respectively. Also, 22% of CHWs were 35 years or less, while 39% and 39% were aged between 36-49 years and 50 years and above, respectively. All CHWs received basic education with about 23% having more than primary education. In terms of primary occupation, 95% of CHWs
are smallholder farmers. 87.4% of CHWs were married, and about half of them belonged to households with over seven members. In the next two sections of this chapter, the researcher presented the bivariate and multivariate results, focusing on the two primary outcome variables: CHWs` job satisfaction and job performance.

4.2 Determinants of job satisfaction among CHWs

The first objective of this study was to understand the determinants of CHWs` job satisfaction as providers of CBMNCH. The researcher employed bivariate and multivariate analyses to understand the factors associated with job satisfaction among CHWs. The ordered logistic regression was used to predict the probability of job satisfaction in the context of other explanatory variables.

Table 4.2 shows the results of bivariate analyses, while Table 4.3 shows the results of multivariate analyses. The first model of multivariate analyses tested the relationship between job satisfaction and selected structural determinates in the Rwandan community context; model 2 controlled the demographic and socioeconomic determinants.
**Table 4.2: Estimates for bivariate ordered logistic regression predicting the variability of CHWs’ job satisfaction in service provision of CBMNCH (n=500)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Bivariate OR(SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHW’s performance</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>7.10 (1.52) ***</td>
</tr>
<tr>
<td>High</td>
<td>11.91 (2.80) ***</td>
</tr>
<tr>
<td><strong>CHW’s motivation</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>5.80 (1.48) ***</td>
</tr>
<tr>
<td>High</td>
<td>15.82 (3.74) ***</td>
</tr>
<tr>
<td><strong>CHW’s knowledge</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>1.20 (0.23)</td>
</tr>
<tr>
<td>High</td>
<td>0.84 (0.17)</td>
</tr>
<tr>
<td><strong>Individual supervision from HC</strong></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>1.00</td>
</tr>
<tr>
<td>Once a year</td>
<td>1.28 (0.26)</td>
</tr>
<tr>
<td>Few times a year</td>
<td>1.31 (0.32)</td>
</tr>
<tr>
<td>Once a month</td>
<td>6.53 (2.18) ***</td>
</tr>
<tr>
<td><strong>Formal training on CBMNCH</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1.00</td>
</tr>
<tr>
<td>Yes</td>
<td>2.28 (0.43) ***</td>
</tr>
<tr>
<td><strong>Peer support</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1.00</td>
</tr>
<tr>
<td>Yes</td>
<td>1.82 (0.40) **</td>
</tr>
<tr>
<td><strong>Access to assessment tools</strong></td>
<td></td>
</tr>
<tr>
<td>All are available</td>
<td>1.00</td>
</tr>
<tr>
<td>Few are missing</td>
<td>1.04 (0.22)</td>
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<tr>
<td>Many are missing</td>
<td>0.58 (0.19)</td>
</tr>
<tr>
<td>All are missing</td>
<td>0.38 (0.09) ***</td>
</tr>
<tr>
<td><strong>Access to registers and education tools</strong></td>
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</tr>
<tr>
<td>All are available</td>
<td>1.00</td>
</tr>
<tr>
<td>Few are missing</td>
<td>1.92 (0.43) **</td>
</tr>
<tr>
<td>Many are missing</td>
<td>2.23 (0.52) **</td>
</tr>
<tr>
<td>All are missing</td>
<td>0.64 (0.62) ***</td>
</tr>
<tr>
<td><strong>Average time spent to travel to HC</strong></td>
<td></td>
</tr>
<tr>
<td>Less than 60 minutes</td>
<td>1.00</td>
</tr>
<tr>
<td>60-120 minutes</td>
<td>1.33 (0.33)</td>
</tr>
<tr>
<td>Over 120 minutes</td>
<td>1.47 (0.36)</td>
</tr>
<tr>
<td><strong>Number of Households that CHW is responsible for</strong></td>
<td></td>
</tr>
<tr>
<td>Less than 125 households</td>
<td>1.00</td>
</tr>
<tr>
<td>125-160 households</td>
<td>0.77 (0.17)</td>
</tr>
<tr>
<td>160-200 households</td>
<td>0.92 (0.20)</td>
</tr>
<tr>
<td>Over 200 households</td>
<td>0.85 (0.19)</td>
</tr>
<tr>
<td><strong>The average number of clients served in a month</strong></td>
<td></td>
</tr>
<tr>
<td>Less than 14 clients</td>
<td>1.00</td>
</tr>
</tbody>
</table>
14-20 clients 1.22 (0.32)
Over 20 clients 0.83 (0.16)

**Years of experience**

- 0-3 years 1.00
- 4-6 years 2.41 (0.59)**
- 7-9 years 2.63 (0.70)**
- 10 years and above 2.76 (0.61)**

**Receive in-kind payment for performing community health work**

- Yes 1.00
- No 0.32 (0.07)**

**Profitable cooperatives**

- Yes 1.00
- No 1.29 (0.22)

**Socioeconomic status category (Ubudehe category)**

- Category 1 1.00
- Category 2 0.84 (0.30)
- Category 3 0.79 (0.28)

**Age in years**

- 35 years old and below 1.00
- 36-49 years old 1.16 (0.22)
- 50 years old and above 2.62 (0.86)

**Marital status**

- Married 1.00
- Others 1.05 (0.25)

**Education**

- Primary education 1.00
- More than primary education 1.69 (0.30)**

**Occupation**

- Nonprofessional Farming 1.00
- Other 0.61 (0.21)

**CHW’s Household size**

- Less than 5 members 1.00
- 5-7 members 0.87 (0.16)
- 8 members and above 0.61 (0.20)

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

About bivariate results (Table 4.2), some structural and individual-level factors were significantly associated with increased job satisfaction among CHWs. At the structural level, the findings show that CHWs who performed high on the job (OR=11.91, $p<0.001$) or were highly motivated (OR=15.85, $p<0.001$), were more likely to have high job satisfaction compared to those who performed poorly. Similarly,
increasing levels of supervision (OR=6.53, p<0.001) on CBMNCH issues, were associated with higher odds of having high job satisfaction. Also compared to those who did not, CHWs who received formal training on CBMNCH (OR=2.28, p<0.001) and peer support (OR=1.82, p<0.01) had higher odds of reporting high job satisfaction. Decreasing access to assessment tools was associated with lower odds of reporting high job satisfaction.

Increasing years of practice as a CHW was significantly associated with higher odds of reporting high job satisfaction. Findings also show that compared to those who received in-kind payment for their work as CHWs, those who did not receive in-kind payment (OR=0.32, p<0.001) were less likely to report high job satisfaction. Among the individual-level variables included in the analysis, education was the only significant predictor of job satisfaction: those with more than primary education (OR=1.69, p<0.01) had higher odds of being satisfied on the job compared to their counterparts with primary education.
Table 4.3: Estimates for multivariate ordered logistic regression predicting the variability of CHWs’ job satisfaction in service provision of CBMNCH (n=500)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 OR(SE)</th>
<th>Model 2 OR(SE)</th>
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<tbody>
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<td>CHW’s performance</td>
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<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>4.23 (1.16)***</td>
<td>4.06 (1.14)***</td>
</tr>
<tr>
<td>High</td>
<td>7.82 (2.11)***</td>
<td>7.08 (2.00)***</td>
</tr>
<tr>
<td>CHW’s motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>3.67 (1.13)***</td>
<td>3.70(1.14)***</td>
</tr>
<tr>
<td>High</td>
<td>8.41(2.39)***</td>
<td>8.59(2.45)***</td>
</tr>
<tr>
<td>CHW’s knowledge</td>
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<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>0.83(0.21)</td>
<td>0.78(0.20)</td>
</tr>
<tr>
<td>High</td>
<td>0.55(0.15)*</td>
<td>0.51(0.15)*</td>
</tr>
<tr>
<td>Individual supervision from HC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Once a year</td>
<td>1.17(0.31)</td>
<td>1.24(0.35)</td>
</tr>
<tr>
<td>Few times a year</td>
<td>1.15(0.38)</td>
<td>1.25(0.43)</td>
</tr>
<tr>
<td>Once a month</td>
<td>6.71(3.31)***</td>
<td>6.19(3.06)***</td>
</tr>
<tr>
<td>Formal training on CBMNCH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Yes</td>
<td>2.17(0.75)*</td>
<td>2.24(0.82)*</td>
</tr>
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<td>Peer support</td>
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<td></td>
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<tr>
<td>No</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Yes</td>
<td>2.72(0.96)**</td>
<td>2.66(1.00)**</td>
</tr>
<tr>
<td>Access to assessment tools</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
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<td>0.88(0.29)</td>
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<td>Many are missing</td>
<td>0.37(0.15)*</td>
<td>0.41(0.17)*</td>
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<tr>
<td>All are missing</td>
<td>0.35(0.10)***</td>
<td>0.32(0.10)***</td>
</tr>
<tr>
<td>Access to registers and education tools</td>
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<td></td>
</tr>
<tr>
<td>All are available</td>
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<td>1.00</td>
</tr>
<tr>
<td>Few are missing</td>
<td>2.13(0.63)**</td>
<td>2.27(0.69)**</td>
</tr>
<tr>
<td>Many are missing</td>
<td>2.36(0.77)**</td>
<td>2.63(0.89)**</td>
</tr>
<tr>
<td>All are missing</td>
<td>4.08(2.63)***</td>
<td>5.75(4.96)***</td>
</tr>
<tr>
<td>Average time spent to travel to HC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 60 minutes</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>60-120 minutes</td>
<td>1.13(0.35)</td>
<td>1.23(0.40)</td>
</tr>
<tr>
<td>Over 120 minutes</td>
<td>1.57(0.48)</td>
<td>1.68(0.53)</td>
</tr>
<tr>
<td>Number of Households that CHW is responsible for</td>
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<td></td>
</tr>
<tr>
<td>Less than 125 households</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>125-160 households</td>
<td>0.89(0.27)</td>
<td>0.95(0.29)</td>
</tr>
<tr>
<td>160-200 households</td>
<td>1.29(0.36)</td>
<td>1.32(0.38)</td>
</tr>
<tr>
<td>Over 200 households</td>
<td>0.72(0.23)</td>
<td>0.660.22</td>
</tr>
<tr>
<td>The average number of clients served in a month</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 14 clients</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>14-20 clients</td>
<td>Over 20 clients</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>Years of experience</strong></td>
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<td></td>
</tr>
<tr>
<td>0-3 years</td>
<td>1.19(0.32)</td>
<td>1.11(0.30)</td>
</tr>
<tr>
<td>4-6 years</td>
<td>0.91(0.23)</td>
<td>0.87(0.23)</td>
</tr>
<tr>
<td>7-9 years</td>
<td>1.19(0.32)</td>
<td>1.11(0.30)</td>
</tr>
<tr>
<td>10 years and above</td>
<td>0.91(0.23)</td>
<td>0.87(0.23)</td>
</tr>
</tbody>
</table>

**Receive in-kind payment for performing community health work**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.00</td>
<td>0.56(0.18) *</td>
</tr>
</tbody>
</table>

**Profitable cooperatives**

<table>
<thead>
<tr>
<th></th>
<th>Unprofitable</th>
<th>Profitable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.00</td>
<td>1.80(0.43) *</td>
</tr>
</tbody>
</table>

**Socioeconomic status category (Ubudehe category)**

<table>
<thead>
<tr>
<th></th>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td>1.00</td>
<td>0.89(0.37)</td>
<td>0.68(0.28)</td>
</tr>
<tr>
<td>35 years old and below</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36-49 years old</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years old and above</td>
<td>1.00</td>
<td>1.88(0.88)</td>
<td></td>
</tr>
</tbody>
</table>

**Marital status**

<table>
<thead>
<tr>
<th></th>
<th>Married</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary education</td>
<td>1.00</td>
<td>0.63(0.298)</td>
</tr>
<tr>
<td>More than primary education</td>
<td>1.38(0.33)</td>
<td></td>
</tr>
</tbody>
</table>

**Occupation**

<table>
<thead>
<tr>
<th></th>
<th>Nonprofessional Farming</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.00</td>
<td>0.56(0.26)</td>
</tr>
</tbody>
</table>

**CHW’s Household size**

<table>
<thead>
<tr>
<th></th>
<th>Less than 5 members</th>
<th>5-7 members</th>
<th>8 members and above</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.00</td>
<td>1.16(0.30)</td>
<td>0.76(0.35)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>-388.54599</th>
<th>-382.3989</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log pseudo-likelihood</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>256.33 ***</th>
<th>260.73 ***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wald X2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>0.2918</th>
<th>0.3030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudo R2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>500</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 4.3 shows the determinants of the overall level of job satisfaction among CHWs in this study after controlling for demographic and socioeconomic variables. The
results show that the R Square indicates that this model accounts for 30.30% of the variability in reporting better job satisfaction. Overall, the coefficient was also statistically significant, \( X^2 = 260.70, p<.001 \). The findings from multivariate analysis were mostly consistent with bivariate results. At the structural level, the results showed that CHWs who were highly motivated (OR=8.59, p<0.001) had higher odds of reporting job satisfaction when compared to those with low motivation. CHWs, who reported high performance on the job (OR=7.08, p<0.001) had higher odds of reporting high job satisfaction compared to those who reported low performance. However, results showed that CHWs who possessed immense knowledge of community health practice (OR=0.51, p<0.05) had lower odds of being satisfied on the job compared to their counterparts with low knowledge. The frequency of supervision was also found to be significantly associated with being satisfied with the job. For instance, the results showed that CHWs who were supervised once every month (OR=6.19, p<0.001) had higher odds of reporting job satisfaction compared to those who received no supervision. The findings also show that compared to CHWs who did not receive formal training on CBMNCH, the results showed that CHWs with formal training (OR=2.24, p<0.05) had higher odds of reporting being satisfied on the job. The findings showed that CHWs who received peer support (OR=2.66, p<0.01) had higher odds of reporting being satisfied on the job compared to their counterparts without peer support. Also, in terms of logistics, CHWs who lacked the required tools to carry out their work was associated with lower odds of being satisfied on the job. For instance, CHWs who lacked assessment tools with OR=0.32 (p<0.05). CHWs who do not receive in-kind payment for their work performance were more likely to report lower odds of job satisfaction compared to those who received in-kind payment with OR=0.53 (p<.01).

4.3. The predictors of the variability of CHWs' performance in service provision

The second objective of this study was to understand the performance of CHWs as providers of CBMNCH. This section presents the factors that influence the job performance of CHWs. Table 4.4 shows the results of bivariate analyses, while Table 4.5 shows the results of multivariate analyses. In the first multivariate model, the researcher
tested the relationship between CHW performance and selected structural determinates in the Rwandan community context. In model 2, the researcher tested this relationship by controlling for demographic and socioeconomic determinants to identify which CHWs` characteristics most impact their performance when providing CBMNCH Care.

Table 4.4: Estimates for bivariate ordered logistic regression predicting the variability of CHWs` performance for CBMNCH (n=500)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Bivariate OR(SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHW`s motivation</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>3.98 (1.02) ***</td>
</tr>
<tr>
<td>High</td>
<td>6.85 (1.56) ***</td>
</tr>
<tr>
<td><strong>CHW`s knowledge</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>1.33 (0.27)</td>
</tr>
<tr>
<td>High</td>
<td>1.24 (0.26)</td>
</tr>
<tr>
<td><strong>CHW`s satisfaction</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>3.64 (0.86) ***</td>
</tr>
<tr>
<td>High</td>
<td>10.91 (2.53) ***</td>
</tr>
<tr>
<td><strong>Individual supervision from HC</strong></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>1.00</td>
</tr>
<tr>
<td>Once a year</td>
<td>1.67 (0.36) *</td>
</tr>
<tr>
<td>Few times a year</td>
<td>1.59 (0.38) *</td>
</tr>
<tr>
<td>Once a month</td>
<td>2.54 (0.78) **</td>
</tr>
<tr>
<td><strong>Formal training on CBMNCH</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1.00</td>
</tr>
<tr>
<td>Yes</td>
<td>2.02 (0.41) **</td>
</tr>
<tr>
<td><strong>Peer support</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.00</td>
</tr>
<tr>
<td>No</td>
<td>0.63 (0.16) *</td>
</tr>
<tr>
<td><strong>Access to assessment tools</strong></td>
<td></td>
</tr>
<tr>
<td>All are available</td>
<td>1.00</td>
</tr>
<tr>
<td>Few are missing</td>
<td>1.27 (0.28)</td>
</tr>
<tr>
<td>Many are missing</td>
<td>0.98 (0.28)</td>
</tr>
<tr>
<td>All are missing</td>
<td>0.85 (0.18)</td>
</tr>
<tr>
<td><strong>Access to registers and education tools</strong></td>
<td></td>
</tr>
<tr>
<td>All are available</td>
<td>1.00</td>
</tr>
<tr>
<td>Few are missing</td>
<td>0.77 (0.18)</td>
</tr>
<tr>
<td>Many are missing</td>
<td>0.72 (0.17)</td>
</tr>
<tr>
<td>All are missing</td>
<td>0.00 (0.00) ***</td>
</tr>
<tr>
<td><strong>Average time spent to travel to HC</strong></td>
<td></td>
</tr>
<tr>
<td>Less than 60 minutes</td>
<td>1.00</td>
</tr>
<tr>
<td>60-120 minutes</td>
<td>0.96 (0.23)</td>
</tr>
<tr>
<td>Over 120 minutes</td>
<td>1.01 (0.25)</td>
</tr>
<tr>
<td><strong>Number of Households that CHW is responsible for</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Household Size</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 125 households</td>
<td>1.00</td>
</tr>
<tr>
<td>125-160 households</td>
<td>0.82 (0.21)</td>
</tr>
<tr>
<td>160-200 households</td>
<td>0.94 (0.20)</td>
</tr>
<tr>
<td>Over 200 households</td>
<td>1.31 (0.31)</td>
</tr>
</tbody>
</table>

The average number of clients served in a month

<table>
<thead>
<tr>
<th>Client Count</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 14 clients</td>
<td>1.00</td>
</tr>
<tr>
<td>14-20 clients</td>
<td>1.76 (0.37) **</td>
</tr>
<tr>
<td>Over 20 clients</td>
<td>0.93 (0.18)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years of Experience</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 years</td>
<td>1.00</td>
</tr>
<tr>
<td>4-6 years</td>
<td>2.83 (0.76) ***</td>
</tr>
<tr>
<td>7-9 years</td>
<td>2.68 (0.70) ***</td>
</tr>
<tr>
<td>10 years and above</td>
<td>3.10 (0.71) ***</td>
</tr>
</tbody>
</table>

Years of experience

<table>
<thead>
<tr>
<th>Payment Method</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1.00</td>
</tr>
<tr>
<td>No</td>
<td>0.45 (0.09) ***</td>
</tr>
</tbody>
</table>

Receive in-kind payment for performing community health work

<table>
<thead>
<tr>
<th>Profitable Cooperatives</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1.00</td>
</tr>
<tr>
<td>No</td>
<td>1.19 (0.21)</td>
</tr>
</tbody>
</table>

Profitable cooperatives

<table>
<thead>
<tr>
<th>Socioeconomic Status Category</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>1.00</td>
</tr>
<tr>
<td>Category 2</td>
<td>0.76 (0.27)</td>
</tr>
<tr>
<td>Category 3</td>
<td>0.69 (0.25)</td>
</tr>
</tbody>
</table>

Socioeconomic status category (Ubudehe category)

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 years old and below</td>
<td>1.00</td>
</tr>
<tr>
<td>36-49 years old</td>
<td>1.01 (0.20)</td>
</tr>
<tr>
<td>50 years old and above</td>
<td>2.91 (0.94) **</td>
</tr>
</tbody>
</table>

Age in years

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>1.00</td>
</tr>
<tr>
<td>Others</td>
<td>1.48 (0.38)</td>
</tr>
</tbody>
</table>

Marital status

<table>
<thead>
<tr>
<th>Education</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary education</td>
<td>1.00</td>
</tr>
<tr>
<td>More than primary education</td>
<td>1.34 (0.26)</td>
</tr>
</tbody>
</table>

Education

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonprofessional Farming</td>
<td>1.00</td>
</tr>
<tr>
<td>Other</td>
<td>0.48 (0.19) *</td>
</tr>
</tbody>
</table>

Occupation

<table>
<thead>
<tr>
<th>CHW’s Household Size</th>
<th>Average CHW Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 members</td>
<td>1.00</td>
</tr>
<tr>
<td>5-7 members</td>
<td>0.89 (0.17)</td>
</tr>
<tr>
<td>8 members and above</td>
<td>0.67 (0.23)</td>
</tr>
</tbody>
</table>

CHW’s Household size

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 4.4 shows findings from the bivariate analysis. Generally, some structural and individual-level factors were significant predictors of CHWs’ performance at the
bivariate level. For instance, in terms of structural determinants of CHWs’ performance, those who were highly motivated (OR=6.85, p<0.001) had higher odds of attaining high job performance compared to those who had low motivation. Similarly, CHWs, who reported higher job satisfaction (OR=10.91, p<0.001) had high odds of reporting high job performance compared to their counterparts who had low job satisfaction. The findings also show that increasing levels of supervision from an HC is associated with higher job performance among CHWs.

Additionally, CHWs who received formal training on CBMNCH (OR=2.02, p<0.01) had higher odds of reporting high job performance compared to their counterparts who did not. Those with poor peer support (OR=0.63, p<0.05) had lower odds of attaining high job performance when compared to their counterparts. The findings further show that increasing years of practice as a CHW was significantly associated with high job performance. Also, CHWs who never received financial incentives (OR=0.45, p<0.001) had lower odds of attaining high job performance compared to their counterparts who received in-kind payment. At the level of individual explanatory variables, age, and occupation were significant predictors of job performance among CHWs. Compared to CHWs who are 35 years and below, those aged 50 years and above (OR=2.91, p<0.01) had higher odds of attaining high performance. Also, CHWs in other occupations (OR=0.48, p<0.05) were less likely to attain high job performance compared to those who were smallholder farmers.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 OR(SE)</th>
<th>Model 2 OR(SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHW's motivation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>2.79(0.81)***</td>
<td>2.80(0.83)***</td>
</tr>
<tr>
<td>High</td>
<td>3.25(0.87)***</td>
<td>3.47(0.93)***</td>
</tr>
<tr>
<td><strong>CHW's knowledge</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>1.02(0.23)</td>
<td>0.98(0.23)</td>
</tr>
<tr>
<td>High</td>
<td>1.07(0.27)</td>
<td>1.07(0.28)</td>
</tr>
<tr>
<td><strong>CHW's satisfaction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Middle</td>
<td>3.19(0.93)***</td>
<td>3.05(0.89)***</td>
</tr>
<tr>
<td>High</td>
<td>8.08(2.33)***</td>
<td>7.30(2.16)***</td>
</tr>
<tr>
<td><strong>Individual supervision from HC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Once a year</td>
<td>1.20(0.30)</td>
<td>1.20(0.30)</td>
</tr>
<tr>
<td>Few times a year</td>
<td>0.96(0.29)</td>
<td>0.97(0.31)</td>
</tr>
<tr>
<td>Once a month</td>
<td>0.90(0.30)</td>
<td>0.96(0.34)</td>
</tr>
<tr>
<td><strong>Formal training on CBMNC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>No</td>
<td>0.84(0.25)</td>
<td>0.79(0.24)</td>
</tr>
<tr>
<td><strong>Peer support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>No</td>
<td>0.45(0.14)*</td>
<td>0.46(0.14)*</td>
</tr>
<tr>
<td><strong>Access to assessment tools</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All are available</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Few are missing</td>
<td>1.18(0.32)</td>
<td>1.21(0.35)</td>
</tr>
<tr>
<td>Many are missing</td>
<td>1.36(0.45)</td>
<td>1.46(0.49)</td>
</tr>
<tr>
<td>All are missing</td>
<td>1.80(0.49)</td>
<td>1.79(0.49)</td>
</tr>
<tr>
<td><strong>Access to registers and education tools</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All are available</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Few are missing</td>
<td>0.48(0.13)**</td>
<td>0.50(0.14)*</td>
</tr>
<tr>
<td>Many are missing</td>
<td>0.42(0.12)**</td>
<td>0.43(0.13)**</td>
</tr>
<tr>
<td>All are missing</td>
<td>0.00(0.00)***</td>
<td>0.00(0.00)***</td>
</tr>
<tr>
<td><strong>Average time spent to travel to HC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 60 minutes</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>60-120 minutes</td>
<td>0.80(0.25)</td>
<td>0.86(0.27)</td>
</tr>
<tr>
<td>Over 120 minutes</td>
<td>0.69(0.23)</td>
<td>0.70(0.23)</td>
</tr>
<tr>
<td><strong>Number of Households that CHW is responsible for</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 125 households</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>125-160 households</td>
<td>0.91(0.24)</td>
<td>0.95(0.26)</td>
</tr>
<tr>
<td>160-200 households</td>
<td>0.86(0.23)</td>
<td>0.87(0.23)</td>
</tr>
<tr>
<td>Over 200 households</td>
<td>1.31(0.38)</td>
<td>1.24(0.38)</td>
</tr>
<tr>
<td><strong>The average number of clients served in a month</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 14 clients</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>14-20 clients</td>
<td>1.76(0.42)*</td>
<td>1.71(0.41)*</td>
</tr>
<tr>
<td>Over 20 clients</td>
<td>1.12(0.25)</td>
<td>1.08(0.24)</td>
</tr>
<tr>
<td><strong>Years of experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>0-3 years</td>
<td>4-6 years</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>Age in years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 years old and below</td>
<td>1.00</td>
<td>2.08(0.38)*</td>
</tr>
<tr>
<td>36-49 years old</td>
<td></td>
<td>2.08(0.38)*</td>
</tr>
<tr>
<td>50 years old and above</td>
<td></td>
<td>2.08(0.38)*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Receive in-kind payment for performing community health work</strong></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td>1.00</td>
<td>0.65(0.17)</td>
</tr>
<tr>
<td><strong>No</strong></td>
<td>1.00</td>
<td>0.67(0.19)</td>
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<table>
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<tr>
<th><strong>Profitable cooperatives</strong></th>
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<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>No</strong></td>
<td>1.00</td>
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<table>
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<tr>
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<th>Category 2</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category 1</strong></td>
<td>1.00</td>
<td>0.81(0.34)</td>
<td>0.78(0.32)</td>
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<tr>
<td><strong>Category 2</strong></td>
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<td></td>
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<tr>
<td><strong>Category 3</strong></td>
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<table>
<thead>
<tr>
<th><strong>Marital status</strong></th>
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</tr>
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<tbody>
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<td><strong>Married</strong></td>
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<table>
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<tr>
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<th>More than primary education</th>
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<tbody>
<tr>
<td><strong>Primary education</strong></td>
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<table>
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<tr>
<th><strong>Occupation</strong></th>
<th>Nonprofessional Farming</th>
<th>Other</th>
</tr>
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<tbody>
<tr>
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<td>0.56(0.2)</td>
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<td><strong>Other</strong></td>
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<table>
<thead>
<tr>
<th><strong>CHW’s Household size</strong></th>
<th>Less than 5 members</th>
<th>5-7 members</th>
<th>8 members and above</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Less than 5 members</strong></td>
<td>1.00</td>
<td>1.04(0.25)</td>
<td>0.91(0.35)</td>
</tr>
<tr>
<td><strong>5-7 members</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8 members and above</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Log pseudo-likelihood** | -449.30959 | -444.31282 |
| **Wald X2**               | 429.29***   | 492.32***   |
| **Pseudo R2**             | 0.1815      | 0.1906      |
| **N**                     | 500         | 500         |

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.5 shows the predicted probabilities of the overall level of job performance among surveyed CHWs by their general characteristics. After controlling demographic variables, the results show that the R Square indicates that this model accounts for 19.06% of the variability in reporting better job performance. Furthermore, the
coefficient was statistically significant, with $X^2 = 492.32$ ($p<.001$). Since $p< 0.05$, it indicates that at least one independent variable in the model is statistically significant. CHWs with high satisfaction (OR=7.30, $p<0.01$) had higher odds of reporting high job performance as compared to their counterparts with low satisfaction. Highly motivated CHWs were three times more likely to report high job performance (OR=3.47, $p<0.01$) as compared to CHWs with low motivation. CHWs with poor peer support were more likely to report low job performance (OR=0.46, $p<.05$) as compared to their counterparts with better peer support. In terms of years of experience, the findings show that CHWs with many years of experience were more likely to report high job performance. This performance increased by increasing years of experience. As expected, the lack of essential materials influenced CHWs` job performance, with those reporting that they lacked the required registers and education tools were more likely to report to perform poorly on the job.
Chapter 5

5. Discussion

5.0 Introduction

Rwanda made significant progress in the promotion and development of community health program through the institution of policies to train volunteer CHWs during the millennium development goals (MDGs) era. The community health program (CHP) aims at ensuring relevance, efficiency, effectiveness, and high impact of health delivery in the country (D’Aquino & Mahieu, 2016). The expectation is that coupled with training and infrastructure development, the performance of health workers will improve and ensure better maternal and child health within a functioning community health program. However, the performance of CHW is dependent not only on training and infrastructure but also several other interrelated individual and structural factors. Therefore, this study aimed to obtain information on the determinants of CHWs` job satisfaction and the correlates of CHWs` performance in executing the Community-based Maternal, Neonatal, and Child Healthcare service in Rwanda. The analysis is based on a sample of 500 randomly selected CHWs with varying years of work experience. The results show several individuals and structural factors associated with the job satisfaction and performance of CHWs in their provision of CBMNCH. The factors identified are generally consistent with what is reported in the literature (e.g., Hsien et al., 2017; Jaskiewicz & Tulenko, 2012; Kok et al., 2015).

5.1. Determinants of CHWs Job Satisfaction

Like any other health worker, CHW performance depends on his/her work satisfaction that is influenced by extrinsic and intrinsic motivators (Swechhya & Kamaraj, 2014). Given the specific responsibilities of CHWs in Rwanda where they fill a critical gap in health service delivery, understanding the predictors of their job satisfaction is vital in proffering policy solutions and in improving the quality of their work. In this study, the
participants were asked how they feel regarding their work and work components to measure their overall job satisfaction.

Overall, CHWs` job satisfaction was influenced by many structural level factors including level of motivation, individual supportive supervision, formal training, financial incentives, knowledge, availability of required materials, and peer support. Some individual-level factors, including socioeconomic status, marital status, educational attainment, type of occupation, and household size, were not statistically associated with CHW job satisfaction. This finding emphasizes the important role of overarching structural factors in guaranteeing CHWs job satisfaction in Rwanda. These findings were largely consistent with other studies that showed the role of structural factors in guaranteeing the job satisfaction of health workers (Ding et al. 2013; Mpembeni et al. 2015).

Given the evidence linking job satisfaction and performance, researchers often use workers performance as a proxy to measure their job satisfaction, with the argument that workers who are high performers also tend to report higher job satisfaction (Swechhya and Kamaraj, 2014; Böckerman & Ilmakunnas, 2012; Christen et al. 2006; ). Consistent with this observation, the middle and high performing CHWs workers in this study had a higher likelihood of reporting job satisfaction compared to CHWs who reported low performance.

The finding that motivation was a significant predictor of CHWs` job satisfaction may not be too surprising. Specifically, CHWs with middle to high motivation were more likely to be satisfied with their duties. While motivation was classified as low, middle, or high in this study, the literature suggests that motivation, defined as either intrinsic or extrinsic play a key role in health workers job satisfaction. Prior studies found that intrinsic factors measured by internal thought processes and perceptions about motivation, and extrinsic factors measured by monetary rewards and recognition for work done, greatly influenced health workers job satisfaction (Lambrou et al., 2010). Similar links between motivation and job satisfaction are shared among health workers in Rwanda. Specifically, a 2016 Ministry of Health’s assessment revealed that most CHWs
exhibit intrinsic motivation as recruitment into the program was mostly voluntary with no financial compensation (Rwanda Ministry of Health, 2016).

CHWs motivation and its link to their job satisfaction could also be due to the overwhelming community recognition of their work (Condo et al., 2014; Rwanda Ministry of Health, 2016). These findings are also consistent with other earlier studies, which suggested that job motivation increases satisfaction (Li et al., 2014; Mpembeni et al., 2015). It is therefore imperative for the managers of CHWs program and its stakeholders to effectively harness this high level of motivation to ensure the delivery of high-quality health services in rural communities by CHWs.

The findings further revealed that CHWs with high knowledge about their primary mandate, specifically, maternal, newborn, and child health care were less likely to report job satisfaction. Although this finding may seem counterintuitive, maybe CHWs with high knowledge of their mandates and conscious of the important function they serve in the healthcare delivery chain are dissatisfied with some existing inefficiencies impeding their ability to effectively discharge or execute their mandates in reducing maternal and child mortality. Consistent with this observation, prior studies have revealed that where health workers cannot perform their duties because of bureaucracies and other delays in accessing the necessary tools to perform their duties, they become frustrated and often report job dissatisfaction (Mathauer and Imhoff, 2006).

Both quantitative and qualitative literature have discussed the importance of supportive supervision on job satisfaction among health care workers in several contexts. Supervision of CHWs in developing countries is critical to ensuring that they perform well, deliver quality services and be motivated (Hill and colleagues, 2014; Mathauer & Imhoff, 2006; Manongi, Marchant, & Bygbjerg, 2006). Consistent with these findings, this study revealed that the lack of individual supervision negatively affects CHWs’ job satisfaction. CHWs with at least one supportive individual supervision a month were more likely to report being satisfied as compared to the CHWs who were never supervised. Also, these findings are consistent earlier studies in Rwanda that identified insufficient supervision as a significant barrier affecting effective service delivery by
CHW (Condo et al., 2014). It is suggested that through supportive supervision, supervisors get the opportunity to consult with CHWs and give value to CHWs’ decision and feelings as they perceive their work is valued and appreciated, thereby enhancing their greater work satisfaction (Kebriaei & Moteghedi, 2009). Hence, this finding suggests that stakeholders of the CHWs program might need to pay particular attention to this critical to improving supportive supervision.

Besides supportive supervision, training of CHWs before the commencement of their duties and other in-service training is seen as particularly useful in enhancing their knowledge and skills for service provision. Training as an indispensable tool in the work of CHWs is useful in the transfer of useful skills and information for the effective delivery of health services to hard-to-reach populations (Javanparast et al., 2012; Donovan, Donovan, Kuhn, Sachs, & Winters, 2018). CHWs, therefore, consider training as an essential component in achieving their mandate as health workers. It may not be surprising that in this study CHWs who received formal training in CBMNCH were more likely to be in a high category of work satisfaction compared to those who have never received formal training in CBMNCH. Inconsistent and insufficient training has been identified as a major barrier to effective health delivery by CHWs in Rwanda. Among others, CHWs explained that more frequent training improved their efficiency, confidence, and knowledge base as most of them are not originally trained as a health professional. They feel empowered and respected within their respective communities when they receive training from superiors who are active health service professional with many years of work experience (Condo et al., 2014). Therefore, CWHs who received limited or no training were less likely to be satisfied with their job given its adverse influence on the effective delivery of their mandates as community volunteers. These findings further suggest that stakeholders in CHWs program should focus on making the training of CHWs more frequent to give them opportunities to improve their knowledge and skills. It will likely lead to better performance of their assigned tasks, which could also improve their feeling of accomplishment (satisfaction) from their work.

In the health delivery literature, peer support is a crucial factor in the retention of health workers as they share knowledge and also discuss how to surmount challenges in
the performance of their daily duties (Adams and Bond, 2000; Lindelow & Serneels, 2006; Kebriaei and Moteghedi, 2009). In this study, peer support was a predictor of job satisfaction for CWHs. CHWs, with excellent peer support, reported job satisfaction. These results are consistent with other studies which found relationships with colleagues and other forms of peer support to be a strong predictor of job satisfaction (Kebriaei and Moteghedi, 2009; Adams and Bond, 2000). Similarly, other scores of scholars from a qualitative inquiry approach have shown inter-personal relationship as an important ingredient in health workers motivation (Lindelow & Serneels, 2006; Dieleman, Cuong, Le, & Martineau, 2003). This finding is beneficial for policy consideration among CHWs stakeholders as they can target strengthening peer support activities as this is currently not implemented in the study areas.

Access to working materials and other essentials are necessary for meeting targets and effective discharge of responsibilities for health workers, particularly in resource-poor context (Willis-Shattuck et al., 2008). Although financial rewards are important for motivating, retaining and ensuring health worker satisfaction, the presence of adequate resources in the form of supplies and essentials are instrumental in improving the morale and work satisfaction of health workers significantly (Willis-Shattuck et al., 2008). In this context, it may not be too surprising that CHWs who had limited access to assessment tools that are important in the discharge of their duties compared to those that had regular access to these materials were less likely to report being satisfied with their jobs. This finding is consistent with other studies (Ayamolowo, 2013; Onyett, 2011; Kebriaei & Moteghedi, 2009). However, the finding that CHWs with limited access to registers and education tools were more likely to report being satisfied with their job compared to those that had all these available seems counter-intuitive to earlier studies. It may be due to CHWs prioritizing their duties in various context. Some may feel that having assessment tools, and activity to report to HC through their cell phones may have resulted in this finding. These findings suggest that it is necessary to equip CHWs to perform their work sufficiently and that in turn could improve their work satisfaction.

Financial incentives and motivation are linked to health worker job satisfaction and retention in many contexts (Kebriaei & Moteghedi, 2009; Zhang et al., 2016).
However, in Rwanda, the CHWs program is mainly voluntary. Therefore, CHWs are encouraged to form cooperatives, where they initiate income generation activities. CHWs may use income generation activities and profits from these initiatives, as financial compensation for their work. Thus, cooperatives serve as the primary source of financial remuneration for CHWs. The findings reveal that CHWs who perceived their cooperatives to be profitable, implying they may be gaining some financial rewards from their cooperatives were more likely to report job satisfaction compared to those who did not belong to a profitable cooperative. It can be argued that although the CHW program was established on a voluntary basis, financial remuneration may still play a key role in CHWs job satisfaction as reported by earlier studies (Mpembeni et al., 2015; Kebriaei & Moteghedi, 2009; Bach Xuan Tran, 2013a; Li et al., 2014).

CHWs who received financial incentives for their services were more likely to have job satisfaction compared to those who were not receiving any payments. Given the voluntary nature of the services rendered by CHWs to their community, financial incentives make CHWs feel appreciated for their work, thus, explaining why they are more likely to have better job satisfaction (Condo et al., 2014; Mathauer & Imhoff, 2006). Based on these findings, it may be critical for stakeholders of the CHW program in Rwanda to rethink how they can provide a suitable financial incentive to CHWs in order to engender strong feelings of governmental support and in turn, better job satisfaction.

Work satisfaction revolves around feelings and attitudes that an individual has regarding the work that motivates them to fulfill an anticipated target or achievement (Ali, 2016). Given the multiplicity of factors associated with health workers’ job satisfaction, this study argues that in the context of Rwanda, CHWs can be satisfied with some aspects of their job and yet remain dissatisfied with other aspects that fail to meet their expectations. Therefore, this study suggests a holistic approach in considering all the possible factors associated with work satisfaction of CHWs.
5.2. Correlates of CHWs` performance in the provision of CBMNCH services

The wide range of CBMNCH services offered by CHWs comprises health promotion, screening, diagnosis, treatment, and referral, and the collection of basic health information. In this study, the researcher examined the extent to which surveyed CHWs perform CBMNCH. Results from this study revealed that the proportion of CHWs with high overall performance was more significant than the proportion with poor performance. Broadly, the performance of CHWs is influenced by their working conditions. Consistent with other studies, this study showed that performance of surveyed CHWs was associated with many factors such as motivation, satisfaction, peer support, workload, and access to required materials (Kok et al., 2015; Jaskiewicz & Tulenko, 2012; Hsien, Chung, Hazmi, & Cheah, 2017; Glenton et al., 2013).

As long as CHW continue to work as volunteers, their effectiveness would rely on their level of motivation (Sanou, Jegede, Nsungwa-sabiiti, et al., 2016). In this study, a high proportion of CHWs` reported being motivated, which is a favourable finding. This finding suggests the work itself was pleasurable for CHWs. This finding is also supported by others previous studies showed that in the rural areas, the female CHWs regard their position as empowering personally and socially (Gopalan, Mohanty, & Das, 2012; Swechhya & Kamaraj, 2014; Mpembeni et al., 2015). This study examined the relationship between CHWs being motivated and performance of their roles. Therefore, the results show that higher levels of personal motivation led to higher performance of CBMNCH delivery. This finding is consistent with studies which have reported the need to enhance working conditions of health workers to motivate them and improve their performance (Castellani et al., 2016; Sanou et al., 2016; Colvin, 2013b). However, motivation is a complex phenomenon; there is, therefore, a continual challenge to keep CHWs motivated (Colvin, 2013). But these findings suggest that managers and stakeholders of the CHWs program should focus on developing better mechanisms that can enhance innovations to strengthen CHWs’ efforts and accomplishments in provision CBMNCH services in the Rwandan context.
Aside from motivation, job satisfaction was also found to be associated with the improved performance of CHWs. The results show that CHWs who were highly satisfied with their roles were likely to perform their CBMNCH duties better than those who were not satisfied. This finding is consistent with results of studies in other contexts that have examined job satisfaction and role performance in the health sector. For example, it has been reported that health workers’ job satisfaction tend to lead to higher performance of their roles (Lu, Zhao, & While, 2019; Blaauw et al., 2013; Mpembeni et al., 2015). In a related study in Rwanda, it was found that CHWs who were satisfied with their job as providers of family planning information to women, performed better than those who were not satisfied (Chin-Quee et al., 2015). These results imply that attention to the provision of favourable working condition for CHWs is essential to achieving a high level of performance. Therefore, stakeholders should need to understand the challenges CHWs face due to their heavy working conditions when considering the assignment of responsibilities to them in order to enable the effectiveness and quality of services provided.

The finding that CHWs who had no peer support perform poorly on the job is consistent with results from previous studies which found peer support to be highly correlated with the performance of health workers (e.g. Drach-Zahavy, 2004; Glass & Walter, 2000; Hamaideh, 2011; Nasurdin, Ling, & Khan, 2018). For instance, a study that examined the link between social support, work engagement and job performance among nurses in Malaysia found that of the three forms of social support studied (perceived organizational support, perceived supervisory support, and perceived peer support), only perceived peer support had a direct and positive effect on the job performance of health workers in the country (Nasurdin et al., 2018). According to Bakker & Demerouti (2007), social support, including peer support, is a form of job resource which may be derived from several sources, such as the health institution itself, supervisors, co-workers, and critical players outside the workplace, such as family and friends (Lysaght & Larmour-Trode, 2008). In the Rwandan context, support to the CHWs is often in the form of supervision from health centers, yet many CHWs in this study reported that they are rarely supervised. The fact that people with no peer support perform less in this study
suggests that an improvement in supervision would likely serve as a buffer to the lack of peer support.

Furthermore, this study reports that CHWs with many years of working experience were more likely to perform their roles more satisfactorily compared with those with fewer years of experience. This finding is also consistent with other studies which have found that experience improves performance of health sector workers (Crispin et al., 2012; Wanduru et al., 2016; Al-Ahmadi, 2009; Fujino et al., 2015). Given the results show that CHWs are given minimal training when they are recruited, the finding that CHWs` job performance improves with years of experience is explained. This dynamic implies that structures should be put in place to retain the trained workers and to organize periodic on-the-job training for the workers in subsequent years to improve performance.

The efficiency and effectiveness of health workers in providing essential services depend on the workload borne by them (Carayon & Gurses, 2008). In Rwanda, the concept of the CHWs Program was to allocate one female CHW in charge of CBMNCH to every village to ensure adequate attention to clients. However, as revealed in this study, some of the CHWs attend to many households in the village, indicating a disproportionate CHW-client ratio. The disproportionate CHW-client ratio has the potential to spur poor service delivery. Thompson et al. (2017), reported that taking on extra duties due to an insufficient number of staffs negatively affects the performance of health workers due to the heavier workload/shifts. By implication, there is a need to increase the number of female CHW in charge of CBMNCH in the village to reduce the workload on the CHWs.

Access to the appropriate working materials plays a vital role in the ability of CHWs to deliver on their core duties (Al-Ahmadi, 2009). Besides, DeCicco, Laschinger, & Kerr, (2006), have argued that access to the needed work materials by health workers aids in autonomous decision making, which is required to reach organizational goals. The finding that the lack of access to necessary registers and education tools negatively affects the fulfillment of CHWs’ primary responsibilities is consistent with previous
studies (Cowen & Moorhead, 2014; Colvin, 2013; Kalyango et al., 2012). This study shows that CHWs who had not access to some of or all their required assessment tools were less likely to perform their roles effectively compared to those with access to all the needed tools. The lack of adequate materials negatively affected CHWs` performance. This result highlights the need for a strong structural base that will equip the CHWs with the appropriate materials to improve the efficiency in the provision of services to assist women during pregnancy and after childbirth.

5.3. Limitations of the Study

While this study provides more significant insights into both the performance of CHWs and the CHWs’ job satisfaction with their role in providing CBMNCH services in a timely manner in rural communities, there are some limitations. The first limitation is related to the fact that the study was conducted in poor resource districts, which may influence the overall findings. Second, given that the researcher collected self-reported data, it may have issues of recall bias, and some CHWs may have provided socially desirable responses. Last, given the cross-sectional nature of the study design, it is not possible to establish causal links.

5.4. Contributions of the Study

This study contributes to the existing literature on CHWs` role performance and works satisfaction in low- and middle-income countries using the context of Rwanda. Like any other health worker, this study revealed that CHWs` performance relies on their job satisfaction. These findings suggest that attentiveness to the provision of favourable working condition for CHWs is vital for achieving a high level of performance. Also, this study has given notably overview of CHWs` motivation and its relationship with their role performance.

Consistent with earlier studies, this study shows a bidirectional relationship between job satisfaction and performance, whereby health workers performance was explained by their job satisfaction and vice-versa (Hou et al., 2013). In evaluating CHWs job satisfaction in Rwanda, stakeholders can achieve this through performance appraisals,
and where CHWs performance is seen to be below a set target, appropriate measures can be put in place to address any outstanding issues that may be adversely affecting their job satisfaction.

The findings also revealed that the average number of households served by CHWs were more than the estimated national average of households in villages. Besides, a high number of CHWs reported travelling long distances for home visits and usually lacked the means of transport to do so. It may be useful for the managers of CHWs program to consider given those CHWs who cover larger geographic areas bicycles to be used for the home visit. This study showed that the average number of hours spent on each client was associated with CHW`s role performance in maternal and child health care. Among reasons reported by the CHWs for their inability to visit all their assigned households, CHWs complained about their workload. All these findings indicate the need to provide a co-worker for CHWs who are responsible for CBMNCH as for the “binome.”

The revelation of the effect of inadequate CHW supervision suggests that it is vital to provide CHW with supportive supervision and other forms of support to ensure the quality of health service provision. Hence, the stakeholders of the CHWs program should think again about the recruitment criteria, motivation, knowledge, and skills and working condition of CHWs` HC supervisors.

Where CHWs cannot manage clients at the village level, they refer them to HC. After treatment at the HC, CHWs expect feedback (contra reference) which will inform them about the care or medication when the referred patients report back to them. According to CHWs, this feedback informs not only them about treatment, but it also serves as a sort of motivation as they feel valued and perceives a good collaboration with HC. However, CHWs do not get this feedback, and therefore, there should be attempts to improve feedback from HC. The most frequent incentives used to motivate CHWs in Rwanda is through the CHWs` cooperatives, which mostly tend to be nonprofitable. Having a more regular and reliable source of funds to motivate CHWs is desirable in enhancing motivation, performance, and satisfaction. These findings also inform
stakeholders that there is a high need for the provision of necessary supplies to improve the ability of CHWs to fulfill their responsibilities in assisting women during pregnancy and after birth. This study further shows that a high number of CHWs did not receive formal training in CBMNH before commencing work as CHWs, and many of those that were trained have never received any in-service training. These findings are supported by the poor knowledge of MNCH reported by some respondents. Majority of CHWs, therefore, reported that it is through mutual collaboration (peer support) they overcome difficulties when assisting expectant and neonatal mothers. There is, therefore, the need to intensify training to improve efficiency in service delivery while institutionalizing peer-support programs given its positive impact on CHWs in discharging their duties and overcoming challenges.

5.5. Directions for further research

The findings of these study provide insight into the current status of CHWs` performance and job satisfaction in the provision of CBMNH prior intervention of TSAM project in the studied area. Therefore, it would be worthwhile to do a post-intervention analysis to do a comparative study examining the impact of TSAM intervention on CHWs` performance and job satisfaction.

This study shows that surveyed CHWs are poorly supervised, and it shows individual supportive supervision to be one predictor of both role performance and job satisfaction. However, to date, little is known about the motivation, knowledge, and skills of CHWs` HC supervisors, which should be a question for future research.
References


systematic review. *Human Resources for Health, 16*(1), 22.


https://doi.org/10.5539/gjhs.v4n5p78


Ludwick, T., Brenner, J. L., Kyomuhangi, T., & Wotton, K. A. (2013). Poor retention does not have to be the rule: retention of volunteer community health workers in Uganda. https://doi.org/10.1093/heapol/czt025


Education Research, 30(6), 947–958. https://doi.org/10.1093/her/cyv045


TSAM. (2016). Project Implementation Plan Training, Support and Access Model (TSAM) for Maternal, Newborn and Child Health (MNCH) in Rwanda and Burundi. Retrieved from https://owl.uwo.ca/portal/site/9e17d319-0b4c-45cf-9e4f-051d5f86619/tool/71900ee6-6f6e-44c8-98b1-5faa02d8c111/ShowPage?returnView=&studentItemId=0&backPath=&errorMessage=&clearAttr=&source=&title=&sendingPage=64460931&newTopLevel=false&postedComment=false


WHO. (2012). The PMNCH 2012 Report - Analysing Progress on Commitments to the
Global Strategy for Women’s and Children’s Health, 1–78.

https://doi.org/978 92 4 156511 0

https://doi.org/10

https://doi.org/entity/mediacentre/factsheets/fs348/en/index.html

https://doi.org/10.1017/CBO9781107415324.004

https://doi.org/10.1186/1472-6963-8-247

https://doi.org/10.1002/hpm.2694

https://doi.org/10.1093/intqhc/mzv111
Appendices

Appendix 1: Western University Ethics Approval

Date: 23 April 2018
To: Dr. Isaac Luginaah
Project ID: 111339
Study Title: Timely Access to Maternal, Neonatal and Child Health (MNCH) for rural communities in Rwanda: The Role of Community Health Workers

Application Type: NMREB Initial Application
Review Type: Delegated
Full Board Reporting Date: 04/May/2018
Date Approval Issued: 23/Apr/2018 16:05
REB Approval Expiry Date: 23/Apr/2019

Dear Dr. Isaac Luginaah

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above-mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained before the conduct of the study.

Documents Approved:

<table>
<thead>
<tr>
<th>Document Name</th>
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<th>Document Version</th>
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<td>CHW Questionnaire April 23 2018 cleaned</td>
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No deviations from or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

*Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).*
Appendix 2: University of Rwanda/College of Medicine and Health Sciences Ethics Approval

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 30th/May/2018

Jean Bosco Bigirimana

College of Medicine and Health Sciences

Approval Notice: No 233 /CMHS IRB/2018

Your Project Title "Timely Access to Maternal, Neonatal and Child Healthcare (MNCH) for rural communities in Rwanda: The Role of Community Health Workers" has been evaluated by CMHS Institutional Review Board.

<table>
<thead>
<tr>
<th>Name of Members</th>
<th>Institute</th>
<th>Involved in the decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof Kato J. Njunwa</td>
<td>UR-CMHS</td>
<td>Yes</td>
</tr>
<tr>
<td>Prof Jean Bosco Gahutu</td>
<td>UR-CMHS</td>
<td>Absent</td>
</tr>
<tr>
<td>Dr Brenda Asiimwe-Kateera</td>
<td>UR-CMHS</td>
<td>Withdrawn from the proceeding</td>
</tr>
<tr>
<td>Prof Ntaganira Joseph</td>
<td>UR-CMHS</td>
<td>x</td>
</tr>
<tr>
<td>Dr Tumusiime K. David</td>
<td>UR-CMHS</td>
<td>x</td>
</tr>
<tr>
<td>Dr Kayonga N. Egide</td>
<td>UR-CMHS</td>
<td>x</td>
</tr>
<tr>
<td>Mr Kanyoni Maurice</td>
<td>UR-CMHS</td>
<td>x</td>
</tr>
<tr>
<td>Prof Munyanshongore Cyprien</td>
<td>UR-CMHS</td>
<td>x</td>
</tr>
<tr>
<td>Mrs Ruzindana Landrine</td>
<td>Kicukiro district</td>
<td>x</td>
</tr>
<tr>
<td>Dr Gishoma Darius</td>
<td>UR-CMHS</td>
<td>x</td>
</tr>
</tbody>
</table>
Dr Donatilla Mukamana  |  UR-CMHS  |  x  
Prof Kyamanywa Patrick  |  UR-CMHS  |  x  
Prof Condo Umutesi Jeannine  |  UR-CMHS  |  x  
Dr Nyirazinyoye Laetitia  |  UR-CMHS  |  x  
Dr Nkeramihigo Emmanuel  |  UR-CMHS  |  x  
Sr Maliboli Marie Josee  |  CHUK  |  x  
Dr Mudenge Charles  |  Centre Psycho-Social  |  x  

After reviewing your protocol during the IRB meeting of where quorum was met and revisions made on the advice of the CMHS IRB submitted on 17\textsuperscript{th} May 2018, Approval has been granted to your study.

Please note that approval of the protocol and consent form is valid for 12 months.

You are responsible for fulfilling the following requirements:
1. Changes, amendments, and addenda to the protocol or consent form must be submitted to the committee for review and approval, prior to activation of the changes.
2. Only approved consent forms are to be used in the enrolment of participants.
3. All consent forms signed by subjects should be retained on file. The IRB may conduct audits of all study records, and consent documentation may be part of such audits.
4. A continuing review application must be submitted to the IRB in a timely fashion and before expiry of this approval
5. Failure to submit a continuing review application will result in termination of the study
6. Notify the IRB committee once the study is finished

Sincerely,

Date of Approval: The 30\textsuperscript{th} May 2018
Expiration date: The 30\textsuperscript{th} May 2019

Professor Kato J. NJUNWA
Chairperson Institutional Review Board, College of Medicine and Health Sciences, UR

CC:
Principal College of Medicine and Health Sciences, UR
University Director of Research and Postgraduate Studies, UR
Appendix 3: Authorization for data collection/Gisagara district

REPUBLIC OF RWANDA

Gisagara, ..............................................

N°: .................................................../07.02.02/DHU

SOUTHERN PROVINCE
GISAGARA DISTRICT

To: The Local Director of TSAM for MNCH

Re: Authorization to carry out community health workers survey

Dear Director,

Reference made to your letter dated June 14th 2018 requesting an authorization to carry out study entitled "Timely Access to Maternal, Neonatal and Child Healthcare (MNCH) for Rural Communities in Rwanda: The Role of Community Health Workers." by BIGIRIMANA Jean Bosco, as partial fulfillment of the requirements for his Master's degree.

I would like to inform you that you are allowed to conduct this study among Community Health in Gisagara District

Sincerely,

RUTABURINGOGA Jerome

Mayor of Gisagara District

cc:

Mr BIGIRIMANA Jean Bosco
Appendix 4: Authorization for data collection/Muhanga district

REPUBLIC OF RWANDA

Muhanga, on .25 /6/2018
No. 2255/07 0207

SOUTHERN PROVINCE
MUHANGA DISTRICT

To the Local Director of TSAM for MNCH
KIGALI.

RE: Response to your letter.

Dear Sir,

Reference to your letter dated on 14th June 2018 requesting to do community health workers survey; I'm pleased to inform you that you are authorized to conduct this study among community health workers within the geographically catchment area of our District and you will give us copy after finished that survey.
Sincerely,

UWAMARIYA Béatrice
Mayor of Muhanga District

CC: Vice Mayor in charge of social affaires
    Ag of Executif Secretary
Appendix 5: Authorization for data collection/Ruhango district

To: Local Director of TSAM for MNCH KIGALI

RE: Response to your letter dated June 14th, 2018

Dear Director,

Reference to your letter dated June 14th, 2018 requesting the authorization to conduct a study:
Timely access to maternal, neonatal and child health care (MNCH) for rural communities in Rwanda: the role of community health workers;

I am pleased to inform you that the authorization to conduct a study among community health workers in our district is given.
However, Mr BIGIRIMANA Jean Bosco who will conduct the study is requested to reserve a copy of study report to Ruhango District. Thank you for your usual collaboration.

Sincerely,

HABARUREMA Valens
Mayor of Ruhango District

CC:
President of Ruhango District Council
Member of Ruhango District Executive Committee

Website: www.ruhango.gov.rw
Appendix 6: Letter of Information and Consent (English)

LETTER OF INFORMATION AND CONSENT

Project Title: Timely Access to Maternal, Neonatal and Child Health (MNCH) for rural communities in Rwanda: The Role of Community Health Workers

Principal Investigator: Dr. Isaac Luginaah (Supervisor)
Department of Geography
University of Western Ontario

Primary Researcher: Jean Bosco Bigirimana (master’s student)
University of Western Ontario

Invitation to participate in a survey

I am Jean Bosco Bigirimana, a master’s student working under the supervision of Dr. Isaac Luginaah in the Department of Geography at the University of Western Ontario in Canada. We are conducting a study to examine the impact of Community Health Workers (CHW) on improving access to maternal, newborn, and child health in Rwanda. We would like to invite you to participate in the study given your extensive knowledge about health issues in your community and community-based interventions you provide for maternal, neonatal, and child health. If you agree to participate, either you will be invited to complete a survey on your own, or we will read the questionnaire to you, and the answers you provide will be recorded on the questionnaire. The questions you will be asked are based on your experiences working as a CHW in your local community.

This study is important because it seeks to gain insight into how the performance of CHWs can be improved in order to contribute to the realization of better informed, more effective and sustainable access to maternal and child healthcare specifically in the context of rural Rwanda. We hope that findings from the study may be used by policymakers to improve the provision of maternal and newborn health through the services of CHWs in Rwanda.

If you agree to participate in this study, the survey should take approximately 45 minutes to finish. With your permission, we will record your responses onto the questionnaire, or you can complete it on your own. All personal information collected for the study during recruitment will be kept confidential. This will be kept separately in a secured cabinet and password-protected laptop and will be destroyed seven years after the study is
completed. Information collected will be stored in a password secured computer and in a secure cabinet under log and key always. The primary researcher will keep any personal information about you in a secure and confidential location for 7 years. A list linking your study identification number with your name will be kept by the researcher in a secure place, separate from your study file. Participants’ personal information will not be used in any data analysis in order to protect individual participant's confidentiality. The de-identified/anonymized data will be accessible by the study investigators as well as the TSAM team members in Rwanda and the broader scientific community. More specifically, the data may be made available to other researchers in Rwanda upon publication so that they may be able to inspect and/or analyze the data as well. No personal information that can identify you will be associated with the survey data that will be shared.

The primary researcher and his supervisors will be the only people with access to your information. The information collected will be used for the purposes of the study only, and all data will be encrypted and stored for a maximum of 7 years, after which they will be permanently deleted. Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

You must be 18 years or older to participate in this research. There are no known risks or harm associated with this study. However, it is anticipated that some participants may feel uncomfortable talking about their personal lives. Your participation is completely voluntary, and you may refuse to participate, choose not to answer any questions or withdraw from the study at any time. There is no consequence of withdrawing or not answering any questions. Should you withdraw from the study, your responses will be removed. You do not waive any legal rights by consenting to this study.

You may keep a copy of this information sheet. There are no financial benefits for participating in this interview. However, findings from this study would have social benefits and will be given to the TSAM project, the local government authorities and other interested stakeholders that may lead to the development of programs to improve maternal and newborn child health through community health workers.

A summary of results (tables indicting the number of respondents who fall in the various major response categories) that will not contain any identifying information will be given to Ms. Francine Ingabire (Assistant Project Manager –TSAM) project who will then disseminate them to communities where the study was conducted. You can also contact Dr. Isaac Luginaah if you are interested in getting feedback on results.

Should you need more information, clarification of issues, or verification of information, you can contact the primary researcher (Mr. Jean Bosco Bigirimana) or his supervisors, Dr. Isaac Luginaah using the contact information provided to you.
If you have any questions about the conduct of this study or your rights as a research participant you may contact the Office of Research Ethics, The University of Western Ontario and the Chairperson of the CMHS IRB and of the Deputy Chairperson at University of Rwanda using the contact information provided to you. If you agree to participate, go to the next page
CONSENT FORM – SURVEY

Principal Investigator: Dr. Isaac Luginaah (Supervisor)
Department of Geography
University of Western Ontario

Primary Researcher: Jean Bosco Bigirimana (Masters student)
Department of Geography
University of Western Ontario

Timely Access to Maternal, Neonatal and Child Health (MNCH) for rural communities in Rwanda: The Role of Community Health Workers

I have read the Letter of Information, have had the nature of the study explained to me, and all questions have been answered to my satisfaction, and I agree to participate.

Are you 18 years or older? □ Yes □ No

Do you agree that we can write down the responses you provide during the survey interview? □ Yes □ No

Participant Name ________________Participant Signature__________
Date____________

"My signature means that I have explained the study to the participant named above. I have answered all the questions."

Researcher’s Name _______________ Researcher’s Signature ________ Date ________

Thank you for considering participating in this study.
Appendix 7: Letter of Information and Consent (Kinyarwanda)

Ubushakashatsi: Ubuzima bw`umubyeyi n`umwana wo mucyaro mu Rwanda: uruhare rw`abajyanama b`ubuzima

Superivizeri wa mberi: Dr. Isaac Luginaah
Department of Geography
University of Western Ontario

Umunyeshuri: Jean Bosco Bigirimana (Masters student)
University of Western Ontario

Ibyerekeye ubu bushakashatsi no Kwemera kugira uruhare mubushakashatsi

Nitwa Jean Bosco Bigirimana, umunyeshuri muri kaminuza yo muri Canada yitwa the Western Ontario University. Superivizeri wanjye ni Dr. Isaac Luginaah umwarimu muri kaminuza ya Western Ontario University. Turigukora ubushakashatsi k`uruhare rw`umujyanama w`ubuzwma muguteza imbere ubuzima bw`umubyeyi n`umwana wo mucyaro mu Rwanda. Twifuzaga ko wagira uruhare muri ubu bushakashatsi nk`umujyanama w`ubuzima. Niba wemeye, turagusaba gusubiza ibibazo byateganyijwe, ibusubizo utanze hamwe nibyabegenzi bawe bikazafasha kugera kuntego y`ubu bushakashatsi. Ibibazo birabaza kungingo nyamukuru zikurikira: Irangamimerere yawe muri rusange, imikorere yawe nk`umujyanama w`ubuzima, amahugurwa wabonye nk`umujyanama w`ubuzima, uko wumva unyuzwe n`umurimo wawe nk`umujyanama w`ubuzima, ibibazo uhura nabyo mukazi kawe nk`umujyanama w`ubuzima, ubufasha uhabwa mukazi kawe nk`umujyanama w`ubuzima nicyo ubona cyakorwa kugirango imikorere yawe irusheho kugende neza nk`umujyanama w`ubuzima.

Ubu bushakashatsi bufite akamaro kanini, kuko amakuru azavamo azafasha kumva neza uko ubuzima bw`umubyeyi n`umwana wo mucyaro bwarushaho gutezwa imbere muburyo burambye hifashishijwe abajyanana b`ubuzima. Bikazatuma ababifite munshingano babashya kurushaho kumenya ibyingenzi umujyanama w`ubuzima akeneye bashiraho uburyo bunoza bw`amahururwa, bwa superiviziyo n`ubufasha kugirango umurimo w`umujyanama w`ubuzima urusheho kunozwana.

Ugomba kuba ufite nibura imyaka 18 kujyana hejuru y’ubukure kugirango ubashe kugira uruhare muri ubu bushakashatsi. Kugira uruhare muri ubu bushakashatsi nta ngaruka mbi bizakugiraho. Ariko ushobora guhagarika ikiganiro igihe cyose usanze ari ngombwa. Ikindi tukwizeza ni uko ntangaruka ishobora kukugiraho bitewe n’uko wisubiyeho.

Ubishatse, ushobora gusigaranara kopi y’urupapuro rw’ibibazo. Ntagihembo cy’amafaranga giteganyijwe kugira uruhare murubu bushakashatsi. Ariko, amakuru azava muri ubu bushakashatsi azafasha ababifite munshingano kurushaho guteza imbere umujyanama w’ubuzima.

Inshamake y’ibyavuye muri ubu bushakashatsi (imbonerahamwe yerekana ibyasubijwe n’umubare wabasubije ibyiciro barimo nta mwirondoro wabo) izahabwa umufatanya bikorwa wacu, umushinga witwa TSAM (mumagambo arambuye y’icyongereza Training, Support, Access, Model) kugirango ubashe kugeza ibyavuye muri ubu bushakashatsi muturere ubu bushakashatsi bwakorewemo. Ushobora nawe guhagaraga cyangwa kwandikira Dr. Isaac Luginaah cyangwa Jean Bosco Bigirimana wumva ushaka kumenya ibyavuye muri ubu bushakashatsi.

Ubaye harikindi kibazo ufite kuri ubu bushakashatsi ushaka gusobanuza ushobora guhamagara/kwandikira abakuriye ubu bushakashatsio Jean Bosco Bigirimana na Dr. Isaac Luginaah kuri nimoza za telefonyi twahaye. Ushobora noguhagaraga abakuriye agashami gashinzwe ibyubushakashatsi muri kaminuza yu Rwanda, koleje y’ubuzima n’ubuvuzi kuri telefonyi igendanwa twahaye y’umumuyobozi wako gashami cyangwa umwungirije.

Urakoze kuba wemeye kugira uruhare muri ubu bushakashatsi. Ushobora kujya kurupapuro rukurikira niba wemeye kugira uruhare.
KWEMERA KUGIRA URUHARE MUBUSHAKASHATSI

Superivizeri: Dr. Isaac Luginaah (Supervisor)  
Department of Geography  
University of Western Ontario

Umunyeshuri: Jean Bosco Bigirimana (Masters student)  
University of Western Ontario

Ubushakashatsi: Ubuzima bw`umubyeyi n`umwana wo mucyaro mu Rwanda: uruhare rw`abajyanama b`ubuzima

Nasomye inyandiko yokwemera kugira uruhare mubushakashatsi, Numvise icyo ubushakashatsi bugamije, ibibazo byose nabajije nasubijwe kandi nanyuzwe, nkaba nemeye kugira uruhare muri ubu bushakashatsi.

Wemeye kugira uruhare muri ubu bushakashatsi? □ Yego  
□ oya

Ufite nibura imyaka 18 y`ubukure? □ Yego  
□ oya

Wemeyeko tukubaza tukandika ibisubizo uduha kurupapuro rwabigenewe? □ Yego  
□ oya

Amazina yawe ________________  Umukono_________Itariki__________

Umushakashatsi/ubaza______________ Umukono_________Italiki__________

Murakoze
Appendix 8: Questionnaires (English)

Community Health Worker Survey

Introduction

The purpose of this survey is to understand how you work as a Community Health Worker. The information you provide will help us to understand the effectiveness of health services delivered by community health workers for maternal, newborn, and child health care. The findings will be used to make recommendations to support the training, and mentorship that would benefit CHWs. Your name will not be linked to the survey or your answers. Your opinion matters this is your chance to tell us what you think.

The survey questions ask about your work experiences. The information collected will be kept private and stored in secure files. Answers from everyone taking the survey will be reported together, and answers by each person will never be reported separate from others. This survey takes about 45 minutes to complete.

<table>
<thead>
<tr>
<th>Researcher Code</th>
<th>Date</th>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
</table>

Section 1: Sociodemographic

1. Gender
   - Male
   - Female

2. What is your age (in years)? ………………..

3. What is your marital status?
   - Single
   - Married
   - Separated
   - Widow/widower
   - Divorced
   - referred not to answer
   - Don’t Know

4. What is the highest grade or year of school you completed?
   - Never attended school
   - Elementary school (grades 1 through 6)
   - Some Secondary School
   - Completed Some Secondary School
   - Some technical school
90

☐ College graduate
☐ University graduate
☐ Don’t Know

5. What is your household size (number of persons living in your home)? ————

6. Which Ubudehe category are you in (social-economic category):
   ☐ Category 1
   ☐ Category 2
   ☐ Category 3
   ☐ Category 4

7. Do you have income-generating activities?
   ☐ Yes
   ☐ No
   ☐ Don’t Know

8. Occupation
   ☐ Farming
   ☐ Trading
   ☐ Artisan
   ☐ Wage employment
   ☐ Salaried
   ☐ Others specify…………………………………………………

9. Residence
   ☐ Rural
   ☐ Urban
   ☐ Don’t Know

10. Do you have a cell phone for your CHW work?
    ☐ Yes
    ☐ No
    ☐ Don’t Know

11. If yes, how often do you have airtime to make a call or to send a text message?
    ☐ Always
    ☐ Often
    ☐ Sometimes
    ☐ Rarely
    ☐ Never
    ☐ Don’t Know
Section 2: Service provision

12. Specialization of CHW?
   □ Binome
   □ ASM

13. Can you tell me in which village/cell/sector you currently work as a CHW?
   ………………………………………………………………………………………………………

14. Are you from this village?
   □ yes
   □ no

14a. How long have you lived in this village? Years……………………………

14b. What is the number of households that you are responsible for?
   A number of households……………………

14c. What is the distance between your house and the FARTHEST house in the village? (one way)
   Km…………………………………m……………………………………

14d. How much time does it usually take you to travel to the FARTHEST house? On-foot (one way)
   Hours…………………………Min…………………………

14e. Do you use any means of transportation for your health-related activities?
   □ yes
   □ no

14f. If yes, which means of transportation do you use for your health-related activities?
   □ Own bicycle
   □ Rented bicycle
   □ Bicycle taxi
   □ Own moto
   □ Rented moto
   □ Moto taxi
   □ Bus
   □ Other/specify ……………………………………….

15. How long have you been serving as a CHW? (the precise number of the year if applicable)
   □ Less than a month………………
   □ 1 - 6 months …………..
   □ 7-12 months ……………
   □ 1-2 years………………
16. On average, how many hours do you work each week on PLANNED activities as a Community Health Worker? Hours………

17. On average, how many hours do you work each week on Emergency/UNPLANNED activities as a Community Health Worker? Hours………

18a. Where do you do MOST of your community health work?

- My Homes
- Visiting Client in their homes
- Community Centers/Meeting Place
- Health Centre
- Schools
- Religious Centers
- On the street
- If somewhere else, please specify ………
- Don’t Know

18b. How often do you do your community health work?

- Every day
- 2-3 times a week
- Once a week
- Other/specify ………………………………
- Don’t Know

18c. When do you do MOST of your community health work?

- Morning hours
- Evening hours
- Night hours
- In the weekends
- Any time
- Other/specify? _____
- Don’t Know

19. What activities do you currently do as a Community Health Worker? (Check all that apply)

19a. Provide education about Healthy Behaviors

- Promotion of breastfeeding,
Promotion of healthy child nutrition,
Promotion of family planning,
Promotion of HIV testing,
Promotion of immunization.
Promotion of information on the partner of family violence
Promotion of information on alcohol and drug abuse
Prevention of mother-to-child transmission of HIV infection,

19b. Preventive Health Care Services

Distribution of bed nets
Vitamins
Condoms for disease prevention
Condoms for birth control
Contraceptives for birth control (E.G., pills; injection)
Misoprostol

19c. Community Mobilizer
Organization of community health events, such as the digging of latrines, identification of clean water sources, and organization of nutrition and sanitation days
Promoting the use of bed nets for malaria prevention and kitchen gardens to address widespread nutritional deficiencies
Providing messages on enrollment in a community health insurance scheme (mutuelle de santé)

19d. Provider of Health Care Services for U-5 years old children

Diagnosis and management of common childhood illnesses, for example,
Diagnosis and management of childhood malnutrition,
Diagnosis and management of childhood diarrhea
Diagnosis and management of childhood pneumonia
Provision of referral when needed.

19e. Assistant to Women during pregnancy and after Birth (check all that apply)

Register pregnant women
Detection of high-risk pregnancies and late post-partum complications
Timely referral high-risk pregnancies and late post-partum complications
Promotion of utilization of antenatal care during pregnancy
Promotion of companionship during labor
Promotion of sleeping under insecticide-treated bed nets during pregnancy
Promotion of birth preparedness
Promotion of skilled care for childbirth
Promotion of adequate nutrition and iron and folate supplements during pregnancy
□ Promotion of reproductive health and family planning
□ Promotion of HIV testing during pregnancy
□ Promotion of exclusive breastfeeding
□ Promotion of postpartum care
□ Promotion of immunization according to national guidelines
□ Provide support to women experiencing breastfeeding problems.
□ Other, specify:

20. On average, how many clients do you serve in any given month? ------

21. Which population(s) of people do you most often work with? (check up to three)

□ Adult Men
□ Adults Women
□ Adolescent girls
□ Adolescent boys
□ Pregnant women
□ Newborns and their parents
□ U-5 children
□ Elderly
□ Don’t Know

22a. On average, what is the distance between the health facility and your village (one way)?
   Km…………………………………..

22b. How much time does it usually take you to travel to the health facility? On-foot (one way)?
   Hours………………..Min………………………………………

22c. Do you find access to the health center a challenge for your community health work?
   □ Yes
   □ No
   □ Don’t Know

23. What is the greatest challenge you face when doing your community health work? (check all that apply)

□ Not enough training
□ Delay of health care seeking by mothers
□ Not enough CHWs to do the work
□ To miss time
□ Transport means
□ Not enough supervision/mentorship
□ Access to medicines and Insufficient equipment
□ Lack of allowance or Incentives for efficient performance
☐ Lack of electricity
☐ Insufficient educational tools
☐ Poor motivation
☐ Poor collaboration with HC
☐ Poor support
☐ Big workload
☐ Other/specify: ……………….

24. Please list things that make your community health work easier or more effective? Specify if applicable

1. To have regular supervision
2. To have enough material on time
3. To receive transportation means
4. To receive communication means
5. To receive allowance or incentives
6. CHWs support each other
7. It is self-arrangement
8. Others/specify ………………………..

25. How often do you receive supervision from HC for your community health work?
☐ Never
☐ Once a year
☐ Few times a year
☐ Once a month
☐ 2-3 times a month
☐ More than 3 times a month
☐ Don’t Know

26a. What was the duration of the last visit from your Cell coordinator?
☐ No coordination visits
☐ <30 minutes
☐ 30-60 minutes
☐ >60 minutes
☐ Don’t Know

26b. What was the duration of the last visit from your Health Centre supervisor?
☐ No supervision visits
☐ <30 minutes
☐ 30-60 minutes
☐ >60 minutes
☐ Don’t Know

27a. Are you a member of the CHW cooperative?
☐ Yes
☐ No

27b. If yes, is your cooperative engaged in income-generating activities?
☐ Yes
☐ No

27c. Do you think that the income-generating activities of your cooperative are profitable, making a loss or neither?
☐ Yes
☐ No
☐ Neither profitable nor making a loss
☐ Do not know

27d. In the last year, have you received any payment from revenue made by the cooperative’s income-generating activities?
☐ Yes
☐ No

27e. If yes, how much did you receive from such payments in the last year?

..................

27f. Did the amount you receive depend on your performance as CHW?
☐ Yes
☐ No
☐ Do not know

27g. In the last 12 months, did you receive any in-kind payments for your work?
☐ Yes
☐ No

27h. If yes, what type of in-kind payments did you receive?
☐ Bicycle
☐ Cell phone
☐ Mutuelle de santé payement
☐ Clothing
☐ Other/specify…………………………..

27i. Where have you received in-kind payment from?
27j. How often do you seek advice/assistance from other CHWs about case management from members who reside in your village or cell?
   - Frequently
   - Sometimes
   - Rarely
   - Never

27k. In comparison to you, are other CHWs in your community more or less knowledgeable about Maternal and child health?
   - Less knowledgeable
   - As knowledgeable as I am
   - More knowledgeable

28a. Do you have all the needed material to be used in your community health work?
   - Algorithms
     - Yes
     - No
     - Don’t Know

28b. CBMNH register
   - Yes
   - No
   - Don’t Know

28c. Referral and counter referral form
   - Yes
   - No
   - Don’t Know

28d. Drug management form
   - Yes
   - No
   - Don’t Know

28e. Supervision forms
   - Yes
   - No
   - Don’t Know
28f. Monthly activity report by CHW
   □ Yes
   □ No
   □ Don’t Know

28g. Sample drugs: e.g., Misoprostol
   □ Yes
   □ No
   □ Don’t Know

28h. Other materials?
   □ Yes
   □ No
   □ Don’t Know

If yes, please specify ………………………

29a. How many households did you visit as part of your CHW work last month?
   □ None was visited
   □ Few were visited
   □ Many were visited
   □ Almost were visited
   □ All were visited

29b. If there are any households you did not visit, what was the reason for?
   □ I missed the time
   □ I was tired
   □ I was busy with other clients
   □ The family member to be visited was not around
   □ Others/specify……………………………………

30. How many home deliveries occurred in your community for the last six months?
    ........

31. How many pregnant women and/or newborn follow-ups did you conduct in the village last month ...........

32. How many women did you accompany to delivery at a health facility in the last month? ................................

33. Do you receive feedback for the patients you transferred?
   □ Yes
   □ No
   □ Don’t Know
34. Have you been trained in RapidSMS?
- Yes
- No
- Don’t Know

35. How many pregnant women in your village have you registered in RapidSMS in the last month?
- None were registered
- Few were registered
- Many were registered
- Almost were registered
- All were registered
- Don’t Know

36. For the pregnant women that you have not registered in RapidSMS from your village, what has been the biggest cause of not registering these pregnant women? You can select more than one.
- Pregnant women don’t want to be registered
- Concern about stigma - pregnant women single or adolescent unplanned pregnancy
- I don’t know how to register pregnant women in the RapidSMS system
- Forgot to register pregnant women
- I did not have time
- I did not have power in my phone
- Others/specify ........................................

37. How many of the newborn from your village have you registered in RapidSMS in the last month?
- None were registered
- Few were registered
- Majority were registered
- Almost were registered
- All were registered
- Don’t Know

38. What is the biggest reason for not registering newborns in your village for RapidSMS? You can choose more than one.
- The family did not want the child to be registered
- Concern about stigma - pregnant women single or adolescent unplanned pregnancy
- Forgot to register the child
- I don’t know how to register newborns in the RapidSMS system
- I did not have time
- I did not have power in my phone
My phone was broken
Others/specify ...........................................

39. How often do you receive feedback from RapidSMS?
- Always
- Most of time
- Sometimes
- Rarely
- Never
- Don’t Know

40. If you have ever sent a red alert in the last 12 months, how long did it take for you to receive a response message?
- Less than one minute
- Between one minute and two minutes
- Between two minutes and five minutes
- More than five minutes
- I have never sent a red alert

41. If you have ever sent a red alert in the last 12 months, how long did it take for an emergency vehicle to arrive?
- Less than five minutes
- Between five and fifteen minutes
- Between fifteen and thirty minutes
- Between thirty minutes sixty minutes
- More than 60 minutes
- Never arrived

42. Do you have any recommendations for improving the RapidSMS program? Please explain?
____________________________________________________________________

43. How often do you perform the following functions as a Community Health Worker? Select one answer for each item listed below.

<table>
<thead>
<tr>
<th>Function</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotion of healthy family practices and disease prevention</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Participating in the outreach activities organized by the HC.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Make follow-ups on children that are on treatment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Activity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---</td>
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<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Properly write monthly reports</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Advocate for the needs and perspectives of the community members you</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>serve.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Taking care of the pregnant woman and preventing post-partum hemorrhage</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Conducting home-based antenatal care visits</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Conducting home-based postnatal care visits</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Recording girls and women in childbearing age and identifying pregnant</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>women living in the village</td>
<td></td>
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</tr>
<tr>
<td>Reporting pregnant women via RapidSMS as a way of a thorough follow up</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>up on maternal and child health care</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Sensitizing all pregnant women to conduct antenatal checkups at a local</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>health center as a preventive strategy for both themselves and their</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>pregnancies</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Check and refer the pregnant woman with danger signs to a health</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>facility.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Checking if the woman has medical insurance and if not, advising her</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>to seek one</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitizing pregnant women to deliver at the health facility and helping them in birth preparedness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----</td>
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<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Promoting early breastfeeding –soon after birth</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helping a mother to start exclusive breastfeeding and making it a habit</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Assessing how breastfeeding is done</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Checking danger signs in the newborn</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Taking care of a healthy newborn</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Taking care of a low birth weight baby</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helping a mother whose baby is referred to a health facility</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Discussing on family planning methods the mother will use when she is back in her fertility period</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Recording daily activities in registers and on relevant forms</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Attending meetings convened by health center</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

44. Have you ever in your community health work deal with issues related to gender-based violence?
   □ Yes
   □ No
   □ Don’t Know
45. If yes, how often do you deal with this?
   - □ Always
   - □ Often
   - □ Sometimes
   - □ Rarely
   - □ Never
   - □ Don’t Know

46. Have you ever in your community health work follow up mothers with mental health problems?
   - □ Yes
   - □ No
   - □ Don’t Know

47. If yes, how often do you do with this?
   - □ Always
   - □ Often
   - □ Sometimes
   - □ Rarely
   - □ Never
   - □ Don’t Know

48. List the Community Health-related extra activities do you do beyond those you were elected to do?
   1) ........................................
   2) ........................................
   3) ........................................
   4) ........................................

Section 3: Satisfaction and Motivation

49. The following questions will ask you about your job satisfaction.

In this part of the questionnaire, I would like to ask you some questions regarding your satisfaction with your role as a Community Health Worker.

I’m now going to read you a series of statements about your level of satisfaction with various aspects of your current job. If you are very satisfied with that aspect of your job, then out of 5, give it 5. If you are satisfied with it, then out of 5, give 4. You can also give 3 (neutral), 2 (unsatisfied), and 1 (completely unsatisfied) depending on your level of satisfaction or dissatisfaction with the factor reflected in the statement.

1 = “Very unsatisfied”
2 = “Unsatisfied”  
3 = Neutral  
4 = “Satisfied”  
5 = “Very satisfied”

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
<th>Very unsatisfied</th>
<th>Unsatisfied</th>
<th>Neutral</th>
<th>Satisfied</th>
<th>Very satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Management Aspects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work organization</td>
<td>Everything I need is provided to perform well at work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>There are enough community health workers to do the work in this village</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Too often the referral system does work efficiently</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>There are regular support and supervision</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Competence strengthening</td>
<td>There is the availability of essential medicines and equipment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>My duties and responsibilities are clear and specific</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Relevant guidelines are easy to access</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>I often have the support I need when I have to make difficult decisions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>CHW's Role</td>
<td>Statement</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>------------</td>
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</tr>
<tr>
<td>about a patient’s care</td>
<td>I regularly have access to relevant training to keep my skills up to date</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>The feedback I get from the supervisor(s) helps me improve my work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>It is not difficult for me to speak openly to my superiors about how things are really going at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>My suggestions made on how to improve the work counts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>CHW feels valued</td>
<td>My supervisor shows very concern for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>My role as community health workers is generally respected</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>II. Performance Aspects</td>
<td>Role of performance</td>
<td>Good performance is recognized by our superiors.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Other CHWs in my village work well, and so our village does perform well overall</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Aspect</td>
<td>Statement</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>We have a good reputation in the community</td>
<td>Individual PBF payments depend on how one performs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Meaningfulness</td>
<td>I understand how my work contributes to the health care system’s overall goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Attitudes to patients</td>
<td>It makes me feel appreciated when clients are grateful.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Pride/shame</td>
<td>I am proud to be working for this health community</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>III. Individual Aspects</td>
<td>Achievement</td>
<td>Being satisfied for what you do as CHW</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>This work gives me a feeling of achievement and accomplishment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Competency</td>
<td>Having enough training to do community health work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Cooperativeness</td>
<td>Getting along well with other CHWs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Getting along well with the superiors.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Overall, your satisfaction with your role</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
50. The following questions will ask you about your Motivation

In this part of the questionnaire, we are asking you about what is important for your motivation to work in the community.

I’m now going to read you a series of statements about different aspects related to your work as a Community Health Worker. If you **STRONGLY AGREE** with a statement, then out of 5, give it 5. If you **AGREE** with a statement, then out of 5, give 4. You can also give 3 (neutral), 2 (disagree), and 1 (strongly disagree) **depending on how you think the statement is important for your motivation**.

1 = “Strongly disagree”
2 = “Disagree”
3 = Neutral
4 = “agree”
5 = “Strongly Agree”

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Management Aspects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work organization</td>
<td>There are regular support and supervision</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>I regularly have access to relevant training to keep my skills up to date</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><strong>II. Performance Aspects</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Competence strengthening</td>
<td>I get feedback from my superiors to improve my performance</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Role of performance</td>
<td>We have clear goals that we work towards.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>I am keen to use any new skills to improve my performance</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><strong>III. Individual Aspects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>I usually cope well with the</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
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<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>changes that occur at work.</td>
<td>I do not intend to leave this work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I would recommend to my friend/neighbor this work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>I am willing to put in a great deal of effort to make this work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>successful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commitment</strong></td>
<td>These days I have the morale to work as hard as I can.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General &amp; intrinsic motivation</td>
<td>This work gives me a feeling of achievement and accomplishment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>achievement</td>
<td>I am punctual about my work.</td>
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<td></td>
<td>I work hard to make sure that no client has to wait for a long</td>
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<td>time.</td>
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<tr>
<td>Timeliness</td>
<td>I am careful not to make errors at work</td>
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<tr>
<td>And attendance</td>
<td>When I am not sure how to respond to client needs, I look for</td>
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<tr>
<td></td>
<td>information or ask for advice.</td>
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<tr>
<td>Consciousness</td>
<td>I try to get on well with the other community health workers</td>
<td></td>
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<td>because it</td>
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<tr>
<td>Cooperativeness</td>
<td>I try to get on well with the other community health workers</td>
<td></td>
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<td></td>
<td>because it</td>
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</table>
makes the work run more smoothly.

Section 4: Training

51. Did you receive formal training before starting to work as CHW?
   □ Yes
   □ No
   □ Don’t Know

52. What sort of formal training did you receive when you began to work as a CHW? (check all that apply)
   □ No formal training received
   □ Health education methods: promotion of healthy family practices and disease prevention
   □ How to communicate with families in the home visit by a maternal community health worker
   □ How to record of girls and women in childbearing age and identifying pregnant women living in the village
   □ Promotion of antenatal care visits
   □ Home-based antenatal care visit
   □ Home-based postnatal care visit
   □ Community-based prevention of a post-partum hemorrhage
   □ Taking care of a newborn
   □ Post-Partum Hemorrhage care (PPH)
   □ Handwashing skills
   □ Danger signs in the newborn (and pregnant woman?)
   □ Breastfeeding and nutrition
   □ How to assess for Partner and family violence
   □ What resources are available for women and children experiencing partner and family violence
   □ Making referrals to the facility for delivery or danger signs.
   □ Family planning
   □ C-IMCI or childhood diseases (ARI, diarrhea, fever)
   □ Antenatal and postnatal care
   □ Sanitation and home hygiene
   □ mental health
   □ HIV and AIDS services
   □ Vaccination
   □ Malaria
   □ Cooperative Management
☐ Other, specify: ……………………………………….

53. Who provides your training? (check all that apply)
☐ MOH
☐ Hospital
☐ Health Center
☐ NGO/specify……………………………………
☐ Other/specify……………………………………
☐ No training

54. What sort of refresher training have you received after your initial training? (check all that apply)
☐ No refreshment training
☐ Health education methods: promotion of healthy family practices and disease prevention
☐ How to communicate with families in the home visit by a maternal community health worker
☐ How to record of girls and women in childbearing age and identifying pregnant women living in the village
☐ Promotion of antenatal care visits
☐ Home-based antenatal care visit
☐ Home-based postnatal care visit
☐ Community-based prevention of a post-partum hemorrhage
☐ Taking care of a newborn
☐ Post Partum Hemorrhage care (PPH)
☐ Handwashing skills
☐ Danger signs in the newborn and pregnant women
☐ Breastfeeding and nutrition
☐ How to assess for Partner and family violence
☐ What resources are available for women and children experiencing partner and family violence
☐ Making referrals to the facility for delivery or danger signs.
☐ Family planning
☐ C-IMCI or childhood diseases (ARI, diarrhea, fever)
☐ Sanitation and home hygiene
☐ mental health
☐ HIV and AIDs services
☐ Vaccination
☐ Malaria
☐ Cooperative Management
☐ Other, specify: ……………………………………….

55. How often do you get refresher training? (check only one)
☐ Weekly
☐ Monthly
56. Did you receive any training in the last 6 months
   □ Yes
   □ No
   □ Don’t Know

57. How often do you have the opportunity to meet with other Community Health Workers in order to share information and provide support for each other? (check only one)
   □ Weekly
   □ Monthly
   □ Every 2 months
   □ Every 3 – 6 months
   □ Every 6 – 12 months
   □ Never

Section 5: CHW knowledge questions with regard to maternal and child health

58. CHW knowledge questions

<table>
<thead>
<tr>
<th>Why is it important that people wash their hands after using the latrine?</th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>0</td>
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<tr>
<td>What kind of water is safe to drink?</td>
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<tr>
<td>At what age of the pregnant women should go for their first,</td>
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<tr>
<td>second, third, and fourth antenatal care visit at the HC?</td>
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<tr>
<td>What are the danger signs for pregnant women?</td>
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<td>Question</td>
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<td>-------------------------------------------------------------------------</td>
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<tr>
<td>What are maternal danger signs after birth</td>
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<tr>
<td>What are dangerous signs in new-borns?</td>
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<tr>
<td>What are essential care interventions in the home to protect the new baby</td>
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<td>What are essential care interventions in the home to prevent PPH for mother who has delivered at home</td>
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<td>At what age should you introduce foods in addition to liquids and breastmilk for the baby?</td>
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<td>Which childhood diseases can be prevented with a vaccine?</td>
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<td>Which are effective methods of contraception?</td>
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<td>Which are signs of postpartum hemorrhage?</td>
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</table>
59. Please list any three recommendations you would like to see to improve the Community Health Workers program?

a. ____________________________________________________________

b. ____________________________________________________________

c. ____________________________________________________________

THANK YOU FOR YOUR PARTICIPATION
Appendix 9: Questionnaires (Kinyarwanda)

**Ubushakashatsi:** Ubuzima bw`umubyeyi n`umwana wo mucyaro mu Rwanda: uruhare rw`abajyanama b`ubuzima

**Ibibazo bigenewe abajyanama b`ubuzima**

**Itangiriro**

Intego yubu b`ushakashatsi ni ukugira tubashe gusobanukirwa n`imigendere y`akazi kanyu nk`abajyanama b`ubuzima. Amakuru uri butange hamwe naya bagenzi bawe, azařasha kurushaho guteza imbere imikorere myiza y`abajyanama b`ubuzima mukubungabunga ubuzima bw`umubyeyi n`umwana. Izina ryawe ntabwo riri bugaragare kuri uru rupapuro usubirizaho. Ibisubizo byose biremewe. Numwanya wo kuvuga uko ubyumva. Ibibazo biribanda kumikorere yawe nk`umujyanama w`ubuzima, kandi ibisubizo uributange bizahurizwa hamwe nibyo abandi bajyanama b`ubuzima. Gububiza biragutwara hafi iminota 45

<table>
<thead>
<tr>
<th>Amazina y`umushakashatsi</th>
<th>Kode</th>
<th>Itariki</th>
<th>Ukwazi</th>
<th>Umwaka</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

**Igika cy a 1: Imyirondoro/imibereho**

1. Igitsina
   - Gabo
   - Gore

2. Ufite imyaka ingahe? …………………

3. Irangamimerere?
   - ingaragu
   - arubatse
   - ntabana nuwo bashakanye
   - umupfakazi
   - yatandukanye nuwo bashakanye
   - guhitamo kudasubiza
   - Ntabwo mbizi

4. Wize kugera kuruhe rwego rw`amashuri?
5. Umuryango wawe ugizwe n`abantu bangage? (abo utangira mitiweste)

6. Uri mukihe cy`icyiciro cy`ubudehe:
   - icyiciro 1
   - icyiciro 2
   - icyiciro 3
   - icyiciro 4

7. Ufite umurimo ukwinjiriza amafaranga?
   - yego
   - oya
   - guhitamo kudasubiza
   - Ntabwo mbizi

8. Niba igisubizo ari yego, ni uwuhe?
   - Ubuhinzi/ubworozzi
   - ubucuruzi
   - ubukorikori
   - gutera ibiraka
   - akazi gafite umushahara uhorahe
   - ibindi, sobanura………………………………………………

9. aho atuye
   - mucyaro
   - mumugi
   - guhitamo kudasubiza
   - Ntabwo mbizi

10 hari telefoni ufite ukoresha nk`umujyanama w`ubuzima?
   - yego
   - oya
   - guhitamo kudasubiza
   - Ntabwo mbizi
11a. niba igisubizo ari yego, ni kangahe ubona amafaranga yo guhamagaza cyangwa koherеза ubutumwa bugufi? (udakoresheje kode wahawe mukoresha hagati yanyu nkабайяnama)

- burigihe
- kenshi
- rimwe narimwe
- gake
- ntanirimwe
- guhitamo kudasubiza
- Ntabwo mbizi

11b. niba igisubizo ari oya, ni iyihe mpamvu?

………………………………………………………………………………………………………………

12. ukora nkuwuhe mujyanama w’ubuzima?

- Binome
- Umuherekeza/ASM

13a. Ukorera muwuhe mudugudu/akagari/umurenge? …………………

13b. Utuye muri uwo mudugudu ukoreramo?

- yego
- oya

13c. Niba igisubizo ari yego, umuze imyaka ingahe muri uwo mudugudu?

Imyaka………………

14a. Mumudugudu wawe harimo ingo zingahe? …………………

14b. Hari intera ingana iki uvuye aho utuye ujya kurugo ruri kure mumudugudu wawe?

Kilometero………………… metero ……………… Ntabwo mbizi………………

14c. Bigutwara igihe kingana iki uva iwayne ujya kurugo ruri kure mumudugudu wawe?

Amasaha……………iminota……………………ntabwo mbizi………………

15a. Hari uburo ufite bugufasha gukora ingendo iyo uri mukazi kawe nk’mujyanama w’ubuzima?

- yego
- oya

15b. niba ari yego, ubwo buryo ni ubuhe (hitamo ibiribyo)?

- Igare ryanjye
- gutira igare
- gutega igare
- moto yanjye
- gutira moto
- gutega moto
- gutega bisa
- ibindi/sobanura …………………………………………………
16. Umaze igihe kingana iki ukora nk’umujyanama w’ubuzima?

□ muni y’ukwezi kumwe
□ hagati y’ukwizi 1 n’amezi 6
□ hagati y’amezi 7 n’amezi 12
□ umwaka 1 kugeza kumyaka 2
□ imyaka 3 kugeza kumyaka 4
□ imyaka 5 kuzamura
□ Ntabwo mbizi

17. Ugereranije umurimo w’ubujyanama m’ubuzima ugutwara amasaha angahe mucyumweru? ………

18. Ugereranije ibikorwa utateganyije (baghamagaye nkigihe umuntu ya rwaye cyangwa yagize

ikiindi kibazo) bigutwara amasaha angahe mucyumweru? ………

19a. Umurimo wawe w’ubujyanama, akenshi uwukorera he (aho abantu bagusanga cyangwa wowe ubasanga)?

□ Murugo iwanjye
□ mungo z’abaturage
□ kukigo nderabuzima
□ mumashuri
□ ku nsengero
□ ku mihanda
□ ahandi, sobanura ………
□ Ntabwo mbizi

19b. ni kuruhe rugero ukoramo akazi k’ubujyanama?
□ buri muni
□ inshuro 2-3 mu cyumweru
□ rimwe mu cyumweru
□ ibindi/sobanura ……………………………
□ Ntabwo mbizi

19c. Nimuyahe masaha ukunze gukora akazi kawe k’ubujyanama?
□ amasaha ya mugitondo
□ amasaha ya nimugoroba
□ amasaha ya nijoro
□ mumpera z’icyumweru (kuwagatandatu/ku cyumweru)
□ igihe icyo aricyo cyose
□ ibindi/sobanura? _____
□ Ntabwo mbizi
20. muribi bikorwa bikurikira nibihe ukora nk`umjyanama w`ubuzima? (hitamo ibyo ubona byose ukora)

20a. ubukangurambaga mubijyanye n`imyitwarire

- ubukangurambaga mukonsa umwana,
- ubukangurambaga mumire y`umwana,
- ubukangurambaga mukuboneza urubyaro,
- ubukangurambaga mukwipimisha agakoko gatera SIDA
- ubukangurambaga mugukingiza abana.
- ubukangurambaga mukurwanya ihohoterwa mungo
- ubukangurambaga mukurwanya ikoreshwa ry`ibiyobyabwenge

20b. ibihorwa byokwirinda indwara

- gutanga inzitira mibu
- gutanga vitamine
- gutanga udukingirizo murwego rwonkwirinda indwara zandurira mumibonano mpuza
  - bitsina
- gutanga udukingirizo muri gahunda yo kuboneza urubyaro
- gutanga imiti yo kuboneza urubyaro (urugero: ibinini, inshinge)
- gutanga Misoprostol

20c. gahunda y`ibikorwa rusange

- kugira uruhare muri gahunda y`ibikorwa y`ubukangurambaga rusange biteganyijwe, urugero nko kubaka imisarane, gusukura amavomero, isuku ni sukura, indyo yuzuye, nibindi.

- Kugira uruhare mubikorwa bigamije kwirinda no kurwanya maraliya hakoresha inzitiramibu; akarima kigikoni muri gahunda yokurwanya imirire mibi

- Kugira uruhare mubikorwa bigamije gukangurira abaturage kwitabira ubwisungane mu kwivuza (mutuelle de santé)

20d. Ibikorwa bijyanye no kuvura abana bari munsi y`imyaka itanu

- gusuzuma no kuvura indwara zifata abana bari munsi y`imyaka itanu, nkurugero:
- gusuzuma no kwita kubana bafite ibibazo by` imirire mibi,
- gusuzuma no kwita kubana bafite impiswi
- gusuzuma no kwita kubana bafite umusonga
- kohereza kukigo nderabuzima aho bikenewe kubana barwaye

20e. gukurikirana umubyeyi utwite na nyuma yo kubyara (hitamo ibyo ubona byose ukora)
kwandika ababyeyi bose batwite bari mumudugudu

gusuzuma ibimenyetso by’ingaruka mbi kumubuyeyi utwite na nyuma yokubyara

kohreza kukigo nderabuzima hakirikare umubuyeyi ugaragaje ibimenyetso by’ingaruka mbi atwite cyangwa nyuma yokubyara

gukangurira ababyeyi gahunda yo kwisuzumisha batwite

ghherekeza ababyeyi kukigonderabuzima mugihe cyo kubyara

gukangurira ababyeyi kurara munzitiramibu iteye umuti

gukangurira ababyeyi kwitegrira kubyara

gukangurira ababyeyi kubyarira kwa muganga

gungangurira ababyeyi indyo yuzuye batwite

gukangurira ababyeyi gahunda yokuboneza urubyaro

gukangurira ababyeyi kwipimisha agakoko gatera SIDA

gukangurira ababyeyi gahunda yo konso

gukangurira ababyeyi gahunda yo kwisuzumisha nyuma yo kubyara

gukangurira ababyeyi gahunda y’ikingiza

gufasha ababyeyi bafite ibibazo byo konso.

ibindi/sobanura:

21. Ugereranyije, wakira/ufasha abantu bangafe mukwezi? -------

22. Ni ikihe cyiciro cy’abantu ukunze kwakira/gufasha nk’umujyanama w’ubuzima? (hitamo kugeza kuri bitatu)

abagabo
abagore
abangavu
ingimbi
ababyeyi batwite/babyaye
impinja n’ababyeyi bazo
abana bari musingi y’imyaka itanu
abasaza/abakecuru
ntabwo mbizi

23a. ugereranyije, ni urugendo rungana iki kuva iwaye ujya kukigo nderabuzima? Km/m…………

23b. ugereranyije, bigutwara igihe kingana iki kuwa iwaye ujya kukigo nderabuzima? …………..

23c. ubona urwo rugendo rukubera imbogamizi mumikorere yawe nk’umujyanama w’ubuzima?

yego
oya
ntabwo mbizi
24. nizihe mbogamizi uhura nazo mumikorere yawe nk`umujyanama w`ubuzima? (hitamo ibyo ubina byose aribyo)

- ntamahugurwa ahagije twabonye
- ababyeyi bashaka ubufasha batinze
- umubare muto wabajyanama b`ubuzima
- kubura umwanya
- ikibazo cya taransiporo
- gusurwa n`abasuperivizeri bidahagije
- imiti n`ibikoresho bidahagije
- kubura agahimbaza musyi/insimbura mubyizi
- ikibazo cy`umuriro w`amashanyarazi
- kubura imfashanyigisho
- ubushake buke
- imikoranire mibi nikigo nderabuzima
- gutereranwa
- akazi kenshi
- ibindi/sobanura: ..................

25. Ni ibihe bintu bigufasha kugirango umurimo wawe ugende neza nk`ubujyanama w`ubuzima? Sobanura aho bibaye ngombwa

1. Tubona Superivisiyo ihagije
2. Tubonera ibikoresho kugihe
3. Duhabwa uburyo bwa taransiporo
4. Guhabwa uburyo bw`itumanaho
5. Duhabwa agahimaza musyi
6. Nukwirwanaho
7. Abandi bajyanama turafashanya
8. Ibindi/sobanura
    ........................................................................................................
    ...

26a. Ni inshuro zingahe usurwa na superivizeri/ankadereri nk`umujyanama w`ubuzima?
- ntanarimwe
- rimwe mumwaka
- gake mumwaka
- rimwe mukwezi
- inshuro 1-3 mukwezi
- hejuru y`inshuro 3 mukwezi
□ ntabwo mbizi

26b. Igihe supervizkeri w´akagari aheruka kugusura mwakoranye igihe kingana iki?
□ ntabwo yigeze ansura
□ igihe kiri munsi y´iminota mirongo itatu
□ igihe kiri hahati yiminota 30-60
□ igihe kiri hejuru y´iminota 60
□ ntabwo mbizi

26c. Igihe superivizeri/ankadereri wo ku ikigonderabuzima aheruka kugusura mwakoranye igihe kingana iki?
□ ntabwo yigeze ansura
□ igihe kiri munsi y´iminota mirongo itatu
□ igihe kiri hahati yiminota 30-60
□ igihe kiri hejuru y´iminota 60
□ ntabwo mbizi

27a. uri umunyamuryango wa koperative y´abajyanama b`ubuzima?
□ yego
□ oya

27b. niba ari yego, koperative yanyu hari imishinga ifite ibyara inyungu?
□ yego
□ oya
□ ntabwo mbizi

27c. niba ari yego, hari umusaruro ubona uturuka kuri koperative yanyu?
□ Yego
□ oya
□ ntabwo mbizi

27d. mumezi 12 ashize, hari amafaranga wabonye aturutse mumishinga yak operative yanyu y´abajyanama b´ubuzima?
□ yego
□ oya

27e. niba ari yego, wabonye nkamafaranga angahe? ………………………

27f. amafaranga mwabonye, yatanze kakurikijwe imihigo mwesheje nk´umujyanama w´ubuzima?
□ yego
□ oya
□ ntabwo mbizi

28a. mumezi 12 ashize, hari ibihembo waba warabonye bitewe n´akazi ukora nk´umujyanama w´ubuzima?
□ yego
□ oya
28b. niba ari yego, ni ikihe gihembo wabonye?
  □ igare
  □ telefone
  □ kwishurirwa mitiweli
  □ imyenda
  □ amafaranga
  □ ibindi/sobanura……………………………………

28c. ninde watanze ibyo bihembo?
  □ Umushinga/NGO
  □ ibitaro by`akarere
  □ ikigonderabuzima
  □ minisiteri y`ubuzima
  □ ibindi/sobanura………………………………………………………………………………
  ………

29a. nikangahe ujya usaba ubufasha kubajyanama b`ubuzima bagenzi bawe iyo uhuye
  nikibazo cy`umurwayi kirenze ubushobozi bwawe?
  □ kenshi
  □ gake
  □ Ntanarimwe

29b. muri rusange Wigereranyije nabandi bajyanama b`ubuzima mukagari kanyu, ubona
  bafite ubumenyi bwusumbuye kubwawe mubijyanye n`ubuzima cyangwa ubona
  ubumenyi ufite busumba ubwabo?
  □ ubumenyi buruse ubwanjye
  □ ubumenye nkubwanjye
  □ ubumenyi buri hasi yubwanjye

30a. ufite ibikoresho bikurikira wifashisha nk`umujyanama w`ubuzima?
  Ifishi y`isuzuma/igipande
  □ yego
  □ oya
  □ ntabwo mbizi

  Niba ari yego, ifishi ufite ni iyihe? ………………………

30b. ikaye yo kwandikamo ubuzima b`umubyeyi cyangwa umwana
  □ yego
  □ oya
  □ ntabwo mbizi

  Niba ari yego, ikayi ufite ni iyihe? ………………………
30c. ifishi ya taransiferi
  □ yego
  □ oya
  □ ntawo mbizi

30d. ifishi y`imiti
  □ yego
  □ oya
  □ ntawo mbizi

30e. ifishi ya superiviziyo (aho superivizeri agusinyira)
  □ yego
  □ oya
  □ ntawo mbizi

30f. ifishi ya raporo y`ibikorwa byaburi kwezi
  □ yego
  □ oya
  □ ntawo mbizi

30g. Imiti yabugenewe: urugero, Misoprostol, n`iyindi
  □ yego
  □ oya
  □ ntawo mbizi

  Niba ari yego, ni iyihe? ……………………………

30h. ibindi bikoresho?
  □ yego
  □ oya
  □ ntawo mbizi

  Niba ari yego, ibihe? ……………………………

31a. Ingo wasuye muzo wagombaga gusura nizingahe mukwezi gushize nkakimwe
  mubikorwa byawe nk`umujyanama w`ubuzima?
  □ nta narumwe nasuye
  □ nasuye nkeya
  □ inyinshi narazisuye
  □ hafi yazose narazisuye
  □ zose narazisuye
  □ ntawo mbizi

31b. niba harizo utasuye, impamvu yabaye iyihe?
  □ nabuze umwanya
  □ abo nagombaga gusura ntabari bahari
☐ nari naniwe
☐ hari abanda barwayi narindimo nitaho
☐ ibindi/sobanura

32. mumudugudu wawe, ni ababyeyi bangahe babyariye murugo mumezi 6 ashize?

........

33. mumudugudu wawe, ni ababyeyi bangahe batwite/babyaye wakurikiranye mukwezi gushize?

.....

34. mumudugudu wawe, ni ababyeyi bangahe waherekeje kubyariye kukigonderabuzima mukwezi gushize?

................

35. hari ubwo ikigonderabuzima kijya kiguha amakuru yerekeye abarwayi wohereje (agafishi kamakuru)?
   ☐ yego
   ☐ oya
   ☐ ntabwo mbizi

36. Wabonye amahugurwa kuri RapidSMS?
   ☐ yego
   ☐ oya
   ☐ ntabwo mbizi

37. mumudugudu wawe, ni ababyeyi bangahe batwite/babyaye wanditse na RapidSMS mukwezi gushize?
   ☐ ntawe
   ☐ bake
   ☐ benshi
   ☐ hafi yabose
   ☐ bose
   ☐ ntabwo mbizi

38. Niba bahari, mumudugudu wawe, ababyeyi batwite utabashije kwandika na RapidSMS, impamvu nyamukuru yaba ari iyihe? Hitamo ibyo ubona byose aribyo.
   ☐ umubyeyi yanze kwandikwa
   ☐ ikibazo cyogutinya akato – umugore udafite umugabo uzwi cyangwa inda yindaro kurubyiruko
   ☐ ntabumenyi mfite mubijyanye no kwandika umubyeyi ukoresheje RapidSMS
   ☐ nibagiwe kubandika
   ☐ ntamwanya narimfite
   ☐ ntamuriro narimfite muri telefoni
   ☐ telefoni yarifite ikibazo
   ☐ ibindi/sobanura

......................
39. mumudugudu wawe, ni impinja zingahe cyangwa abana bari munis y’imyaka 2 wabashije kwandika ukoresheje RapidSMS mukwezi gushize?

☐ ntanumwe
☐ bake
☐ benshi
☐ hafi yabose
☐ bose
☐ ntabwo mbizi

40. Niba bahari, mumudugudu wawe, impinja cyangwa abana bari munis y’imyaka 2 utabashije kwandika ukoresheje RapidSMS, impamvu nyamukuru ni iyihe? Hitamo ibyo ubona byose aribyo.

☐ umubyeyi yanze koyandikwa
☐ ikibazo cyogutinya akato – umugore udafite umugabo uzi cyangwa inda yindaro kurubyruko
☐ ntabumenyi mfite mubijyanye no kwandika umubyeyi ukoresheje RapidSMS
☐ nibagiwe ku-bandika
☐ ntamwanya narimfite
☐ ntamuriro narimfite muri telefoni
☐ telefoni yarifite ikibazo
☐ ibindi/sobanura ...........................................

41. nikangahe ujya ubona igisubizo kubutumwa wohereje ukoresheje RapidSMS?

☐ burigihe
☐ hafi ya burigihe
☐ rimwe narimwe
☐ gake
☐ ntanarimwe
☐ ntabwo mbizi

42. niba harubwo wigeze kohereje ubutumwa mpuruza kuri RapidSMS mumezi 12 ashize, byatwaye igihe kingana iki ngubone igisubizo?

☐ mumunota umwe
☐ umunota 1-2
☐ iminota 3-5
☐ hejuru y’iminota 5
☐ ntabutumwa mpuruza nohereje

43. niba harubwo wigeze kohereje ubutumwa mpuruza/simusiga kuri RapidSMS mmezi 12 ashize, byatwaye igihe kingana iki ngo ambilansi ibe ikugezeho?

☐ mumunota itanu
☐ hagati y’iminota 5-15
☐ hagati y’iminota 15-30
☐ hagati y’iminota 30-60
44. haricyo wumva cyakorwa ngo uburyo bwogukoresha RapidSMS burusheho kunozw? sobanura

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45. Ni inshuro zingahe ukora ibikorwa bikurikira nk`umujyanama w`ubuzima.

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<p>| ubukangurambaga kubuzima bwiza mumuryango no kwirinda indwara | 1 | 2 | 3 | 4 | 5 |
| Kwitabira ibikorwa rusange muby<code>ubuzima byateguwe | 1 | 2 | 3 | 4 | 5 | | Gukurikirana abana mumudugudu bari ku miti | 1 | 2 | 3 | 4 | 5 | | Gukura raport yaburi kwezi | 1 | 2 | 3 | 4 | 5 | | Gukora ubuvugizi muby</code>ubuzima kubaturuge | 1 | 2 | 3 | 4 | 5 |
| Gukurikirana abagore batwite na nyuma yokubyara | 1 | 2 | 3 | 4 | 5 |
| Gusura umuryango muri gahunda y<code>ubukangurambaga y</code>ubuvuzi mbere yo kubyara | 1 | 2 | 3 | 4 | 5 |
| Gusura umuryango muri gahunda y<code>ubukangurambaga y</code>ubuvuzi nyuma yo kubyara | 1 | 2 | 3 | 4 | 5 |
| kwandika abagore n<code>abakobwa bari mukigero cy</code>uburumbuke no kwandika ababveyi batwite | 1 | 2 | 3 | 4 | 5 |
| Kumenyekanisha abagore batwite ukoresheje RapidSMS | 1 | 2 | 3 | 4 | 5 |
| ubukangurambaga kukwipimisha kwabagore batwite | 1 | 2 | 3 | 4 | 5 |</p>
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gusuzuma no kohereza ku</td>
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<tr>
<td>ikigonderabuzima abagore batwite</td>
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<tr>
<td>bagaragaje ibimenyetso mpuruza</td>
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<tr>
<td>Ubukanguramba bwa mitiweri</td>
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<tr>
<td>kubagore batwite</td>
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<td>Ubukanguramba kukubyarira</td>
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<tr>
<td>kwamuganga kubagore batwite</td>
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<td>Ubukanguramba kubyiza bo</td>
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<td>konsa</td>
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<tr>
<td>Gufasha abayeyi kugira</td>
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<td>akamenyero ko konsa gusa</td>
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<tr>
<td>Gufasha ababayeyi bafite ibibazo</td>
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<tr>
<td>Gusuzuma ibimenyetso mpuruza</td>
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<td>kubana bavutse</td>
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<td>Gukurikirana ubuzima bw’abana</td>
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<tr>
<td>b’impinja ari mumudugudu</td>
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<td>Gukurikirana by’umwihaiko</td>
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<td>ubuzima bwanana bavutse</td>
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<td>Gufasha umubeyyi umwanawe</td>
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<tr>
<td>woherewe kukigonderabuzima</td>
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<tr>
<td>Ubukanguramba bugguboneza</td>
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<tr>
<td>urubaho mumuryango</td>
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<tr>
<td>Kwandikia ibikorwa byaburimunsi mumafishi</td>
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<tr>
<td>Kwitabira amanama yateguwe</td>
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</tr>
<tr>
<td>n’ikigonderabuzima</td>
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</tbody>
</table>

46. harubwo mubikorwa byawe nk’umujyanama w’ubuzima ujya uhura nabafite ibibazo bijyanye nihohoterwa?
   □ yego
   □ oya
   □ ntobwo nibuka

47. niba ariyego, ni inshuro zingahe waba uhura nibi bibazo?
   □ burigihe
   □ kenshi
   □ rimwe narimwe
   □ gake
   □ ntanarimwe
   □ ntobwo mbizi

48. harubwo mubikorwa byawe nk’umujyanama w’ubuzima ujya uhura n’ababyeyi bafite ibibazo byomumutwe (urugero: ihungabana, agahinda gakabije, guhangayika)?
   □ yego
   □ oya
49. niba ariyego, ni inshuro zingahe waba uhura nabo?
- burigihe
- kenshi
- rimwe narimwe
- gake
- ntabwo mbizi

50. Nibihe bindi bikorwa by`ubuzima ukora nk`umujyanama w`ubuzima bitari munshingano zawe?
1) ...........................................
2) ...........................................
3) ...........................................
4) ...........................................

51. Ni igiki wumva cyakorwa kugirango akazi k`umujyanama w`ubuzima karusheho gukorwa neza gateze imbere n`ugakora?
- a. ........................................................................................................
- b. ........................................................................................................
- c. ........................................................................................................

Igika 3: . kunyurwa no kugira ubushake bwogukomeza gukorwa nkumujyanama w`ubuzima

52. Ibibazo bikurikira birabaza uburyo wumva unejejwe n`umurimo wawe nk`umujyanama w`ubuzima n`ubushake wumva ufite bwogukomeza kuwukora

<table>
<thead>
<tr>
<th>Ibibazo bikurikira birabaza uburyo wumva unyuzwe n<code>umurimo wawe nk</code>umujyanama w`ubuzima</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ngiye kujya nsoma interururo zijyanye nuko wumva unyuzwe mubikorwa byaburimunsi ukora nkumujyanama w`ubuzima. Aho wumva unyuzwe cyane ni 5/5, aho wumva unyuzwe ni 4/5, aho wumva biri hagati nahagati ni 3/5, aho wumva utanyuzwe ni 2/5, aho wumva utanyuzwe cyane ni 1/5.</td>
</tr>
</tbody>
</table>

1 = “kutanyurwa cyane”
2 = “ntabwo nyuzwe”
3 = hagati na hagati
4 = “kunyurwa”
5 = “kunyurwa cyane”
<table>
<thead>
<tr>
<th>Ingingo nkuru</th>
<th>Uko ubibona</th>
<th>kutanyurwa cyane</th>
<th>kutanyurwa</th>
<th>Hagati na hagati</th>
<th>kunyurwa</th>
<th>kunyurwa cyane</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. kuruhande rw`ubuyobozi</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Ibikorwa/ibite ganywa kuri gahunda</strong></td>
<td>Kubona Ibikenewe byose ngo mbashe gukora umurimo wanjye neza nk<code>umujyanama w</code>ubuzima.</td>
<td>1 2 3 4 5</td>
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<tr>
<td></td>
<td>abajyanama b`ubuzima bahagije dufatanya</td>
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<tr>
<td></td>
<td>gu taransifera umurwayi muburyo bworoshye</td>
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<tr>
<td></td>
<td>kubona ubufasha na superiviziyo uko bikwiye</td>
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<tr>
<td><strong>Kongerera ubushobozi</strong></td>
<td>Ibikoresho by<code>ingenzi n</code>imiti bihagije</td>
<td>1 2 3 4 5</td>
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<tr>
<td></td>
<td>Inshingano zanjye zirumvikana kandi zirasobanutse</td>
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<tr>
<td></td>
<td>Imfashanyigisho ziraharit</td>
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<tr>
<td></td>
<td>Burigihe mbona ubufasha nkeneye iyo mpuye nikibazo cy’umurwayi kingoye</td>
<td></td>
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<tr>
<td></td>
<td>Amahugurwa yokunyongerera ubumenyi nyabona uko bikwiye</td>
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<tr>
<td></td>
<td>Inyungaiizi mpabwa na supeviseri zimfasha kurushaho gukora neza</td>
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<tr>
<td><strong>Uko wiyumva</strong></td>
<td>Ntibingora kubwira superivizeri wanjye uko ibintu bigenda mukazi</td>
<td>1 2 3 4 5</td>
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<tr>
<td></td>
<td>Ibitekerezo byanjye byuko akazi</td>
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<td></td>
</tr>
<tr>
<td>Guhabwa agaciro</td>
<td>Supervizéri agaragaza ko yitaye kukazi nkora</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Akamaro kanjye nk’umujyanama wubuzima gahabwa agaciro</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

| II. umusaruro | Supervizéri yishimira umusaruro twagezeho | 1 | 2 | 3 | 4 | 5 |
|               | Abajyanama bagenzi banjye bakora neza. Muri rusange akagari kacu gakora neza | 1 | 2 | 3 | 4 | 5 |
|               | Abaturage umurimo anjye bawuha agaciro | 1 | 2 | 3 | 4 | 5 |
|               | Agahimbaza musyi gatangwa hakurikije ibikorwa umujyanama yagezeho | 1 | 2 | 3 | 4 | 5 |

| agaciro | Umurimo nkora ufite uruhare mukugera kuntemo z’ubuzima n’ubuvuzi muri rusange mu rwanda | 1 | 2 | 3 | 4 | 5 |

| Imyitwarire kubarwayi | Numva aribyagaciro iyo umurwayi yishimiye ibyo nakoze | 1 | 2 | 3 | 4 | 5 |

| umunezero/ip funwe | Numva aribyagaciko kuba nkora nk’umujyanama w’ubuzima muruyu mudugudu | 1 | 2 | 3 | 4 | 5 |

| III. uruhare rw’umuntu kugiti cye | Murirusange numva | 1 | 2 | 3 | 4 | 5 |
### 52b. ubushake bwogukomeza gukora nkumujyanama w`ubuzima

<table>
<thead>
<tr>
<th>Ingingo nkuru</th>
<th>Uko ubibona</th>
<th>Kutemeranya nabyo cyane</th>
<th>Kutemeranya nabyo</th>
<th>Hagati na hagati</th>
<th>Kwemeranya nabyo</th>
<th>Kwemeranya nabyo cyane</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Imikorere</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Tubona ubufasha na superivision uko bikwiye</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<td><strong>Imikorere</strong></td>
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<tr>
<td>Tubona burigihe amahugurwa yogutuma turrushaho gukarisha ubumenyi</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>II. umusaruro</td>
<td>Kongererwa ubushobozi</td>
<td>Mbona inama zivuye kwa superivizeri zimfasha kurushaho gukora neza</td>
<td>1</td>
<td>2</td>
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<tr>
<td></td>
<td>Umusaruro mukazi</td>
<td>Dufite intego twerekezaho</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td></td>
<td></td>
<td>Niteguye gukora ibishoboka byose ngo ngere kumusaruro ushimishije</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>III. uruhare rw’umuntu kugiti eye</td>
<td>Uko wiyumva</td>
<td>Ngerageza guhangana ningorane mpura nazo nk’umujyanama w’ubuzima</td>
<td>1</td>
<td>2</td>
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<tr>
<td></td>
<td>kwiyemeza</td>
<td>Sinteganya kureka gukora nk’umujyanama w’ubuzima</td>
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<tr>
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<td></td>
<td>Numva nabwira inshuti yanjye cyangwa umuturanyi gukora nk’umujyanama w’ubuzima</td>
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<tr>
<td></td>
<td></td>
<td>Ndumva niteguye gukora ibishoboka ngo akazi kanjye kagende neza</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>umurava</td>
<td>Muri iyiminsi, numva ngomba gukora cyane bishoboka</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>kunyurwa</td>
<td>Aka kazi kampo kumva ko haribyo nzagezeho</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Kwitabira umurimo</td>
<td>Akazi kanjye ngakorera kugihe.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nkora ibishoboka byose ngo abo</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>
ubumuntu

<table>
<thead>
<tr>
<th>Ngerageza kwitwararika ngo ntakora amakoza mukazi kanjye k`ubujyanama</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iyo nsanze ibibazo umuturage afite birenze ubushobozi bwanjye, nshaka ubufasha</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

imikoranire

| abandi bajyannama b`ubuzima ngerageza gukoran nabo neza | 1 | 2 | 3 | 4 | 5 |

**Igika 4: Amahugurwa**

53. Wabonye amahugurwa mbere yuko utangira gukora nk`umujyanama w`ubuzima?
- □ yego
- □ oya
- □ ntabwo nibuka

54. Nayahe mahugurwa wabonye ugitangira gukora nk`umujyanama w`ubuzima? (hitamo ibyo

- ubona byose aribyo
- □ ntamahugurwa nabonye
- □ ubukangurambaga kubuzima bwiza mumurryango no kwirinda indwara
- □ gutega amatwi muri gahunda yo gusura umurryango nk`umujyanama w`ubuzima
- □ kwandika abagore n`abakobwa bari mukigero cy`uburumbeke no kwandika ababyeyi
  - batwite bari mumudugudu
- □ ubukangurambaga mukwipimisha kwabagore batwite
- □ gahunda yogusura abagore batwite mungo
- □ gahunda yogusura ababyeyi mungo nyuma yo kubyara
- □ gahunda yo gusuzuma no kwirinda kuva nyuma yo kubyara
- □ gahunda yo kwita kumwana muminsina yambere akivuka
- □ gahunda yo gukaraba intoki
- □ gahunda yogusura ibiménye mpuruza kumubyeiyi utwite no kuruhinja
- □ gahunda yo konsa nimiriye myiza
- □ gahunda y`ubukangurambaga mukwirind ihohoterwa mumurryango
- □ ubumenyi ku bufasha bw`umwana n`umubyeiyi wahuye nihohoterwa
- □ uburyo bwoguko taransiferi
- □ kuboneza urubyaro
- □ gahunda yo kuvura indwara zabana (IMNCI)
☐ Isuku n’isukura
☐ ubuzima bwo mumutwe
☐ SIDA
☐ malariya ……………………………………….
☐ ikingiza
☐ gukora umushinga ……………………………………….
☐ ibindi, sobanura: ……………………………………….

55. Ninde wabahaye amahugurwa? *(hitamo ibyo ubona byose aribyo)*
☐ minisiteri y’ubuzima
☐ ibitaro by’akarere
☐ ikigonderabuzima
☐ Umushinga/sobanura……………………………………
☐ abandi/sobanura…………………………………….
☐ ntamahugurwa nabonye

56. nayahe mahugurwa yogukarishya ubumenyi wabonye nyuma yoguhugurwa bw’ambere? *(hitamo ibyo ubona byose aribyo)*
☐ ntamahugurwa nabonye
☐ ubukangurambaga kubuzima bwiza mumuryango no kwirinda indwara
☐ gutega amatwi muri gahunda yo gusura umuryango nk’umujyanama w’ubuzima
☐ kwandika abagore n’abakobwa bari mukigero cy’uburumbuke no kwandika ababyeyi
  batwite bari mumudugudu
☐ ubukangurambaga mukwipimisha kwabagore batwite
☐ gahunda yogusura abagore batwite mungo
☐ gahunda yogusura ababyeyi mungo nyuma yo kubyara
☐ gahunda yo gusuzuma no kwirinda kuva nyuma yo kubyara
☐ gahunda yo kwita kemwana muminsi yambere akivuka
☐ gahunda yo gukaraba intoki
☐ gahunda yogusura ibimenyetsa mpuruza kumubyeyi utwite no kuruhinja
☐ gahunda yo konsa nimirire myiza
☐ gahunda y’ubukangurambaga mukwirind ihohoterwa mumuryango
☐ ubumenyi ku bufasha bw’umwana n’umubyeyi wahuye nihohoterwa
☐ uburyo bwoguko taransiferi
☐ kuboneza urubyaro
☐ gahunda yo kuvura indwara zabana (IMNCI)
☐ Isuku n’isukura
☐ ubuzima bwo mumutwe
☐ SIDA
☐ malariya ……………………………………….
☐ ikingiza
☐ gukora umushinga ……………………………………….
☐ ibindi, sobanura: ……………………………………….
57. nikangahe ujya ubona amahugurwa yogukarisha ubumenyi?
   □ buri cy’umweru  
   □ buri kwezi  
   □ buri mezi abiri  
   □ buri mezi 3-6  
   □ buri mezi 6-12  
   □ ntamahugurwa njyambona.

58. hari amahugurwa waba warabonye mumezi 6 ashize?
   □ yego  
   □ oya  
   □ ntabwo nibuka

59. nikangahe mujya muhura nkabajyanama b’ubuzima mugasangira ibitekerezo mugamije gufashanya?
   □ buri cyumweru  
   □ buri kwezi  
   □ buri mezi 2  
   □ buri mezi 3-6  
   □ buri mezi 6-12  
   □ ntitujya duhura nk’abajyanama b’ubuzima

Igika cya 5: ubumenyi rusange k’ubuzima bw’umubyeyi n’umwana

<table>
<thead>
<tr>
<th>Ni ahahe kamaro kogukaraba intoki uvuye kumusarani?</th>
<th>yes</th>
<th>no</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>0</td>
</tr>
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<tr>
<td></td>
<td>1</td>
<td>0</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ni ahahe mazi aba yujuje ubuziranenge yo kunyobwa?</th>
</tr>
</thead>
<tbody>
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<td></td>
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</tbody>
</table>

Umutye utwite agomba kujiya kwisuzumisha bwambere, bwakabiri, bwagatatu n’ubwakane kugonderabuzima inda atwite ifite amezi angahe?

|                                                     | 1   | 0  |
|                                                     | 1   | 0  |
|                                                     | 1   | 0  |

<table>
<thead>
<tr>
<th>Nibihe bimenyetso mpuruza kumugore utwite?</th>
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<tbody>
<tr>
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<tr>
<td></td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Why did the village1 change their name?</td>
</tr>
<tr>
<td>Why didn't they change their village name?</td>
</tr>
<tr>
<td>Why did they choose a new village name?</td>
</tr>
<tr>
<td>Why did they choose a new village name?</td>
</tr>
<tr>
<td>Why did they choose a new village name?</td>
</tr>
<tr>
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</tr>
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<tr>
<td>Why did they choose a new village name?</td>
</tr>
<tr>
<td>Why did they choose a new village name?</td>
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<td>Why did they choose a new village name?</td>
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</tbody>
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**MURAKOZE KUBA MWITABIRIYE UBU BUSHAKASHATS**
### Appendix 10: Curriculum Vitae

<table>
<thead>
<tr>
<th>Name</th>
<th>Jean Bosco Bigirimana</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Post-Secondary</strong></td>
<td>Western University</td>
</tr>
<tr>
<td></td>
<td>University of Rwanda</td>
</tr>
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| **Education and Degrees**   | Department of Geography, Western University |
|                            | London, Ontario, Canada |
|                            | 2017-2019 MSc Health Geography |
|                            | Department of Clinical Medicine and Community Health, University of Rwanda/College of Medicine and Health Sciences |
|                            | Kigali, Rwanda 2011-2013 BSc. |
|                            | Department of mental Health, University of Rwanda/College of Medicine and Health Sciences |
|                            | Kigali, Rwanda 2004-20 Advanced Diploma. |

<table>
<thead>
<tr>
<th><strong>Related Work</strong></th>
<th>University of Rwanda</th>
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<td></td>
<td>Tutorial Assistant, 2009 to date</td>
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| **Conference Presentations**| The 6th Annual Conference of the Society for the Advancement of Science in Africa (SASA). June 6-9 in Toronto, Canada |
|                            | “Timely access to Maternal, Neonatal, and Child Healthcare for rural communities in Rwanda. Role of Community Health Workers |