Access, Equity, and Ethics: A qualitative exploration of Rwanda's maternal community health worker program

by

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Abstract

Improving maternal health outcomes is one of the main health concerns in Rwanda, a country that was shaken by the 1994 genocide against the Tutsi. As part of the rebuilding process, the health sector focused on using community participation to promote access to maternal healthcare. One such initiative was the creation of the maternal community health worker role as part of the community health worker program. Maternal community health workers are volunteer women elected by their communities to provide basic maternal health services while encouraging the utilization of formal healthcare services for antenatal care, delivery, and postpartum care. Using a qualitative case study approach, my dissertation research explores some of the facilitators and barriers to access to the community-based services offered by maternal health community health workers. I draw on the findings from in-depth interviews with maternal community health workers and women who have used their services in five Rwandan districts to pursue three distinct, yet related, analyses. First, I highlight the different aspects of access to maternal health care at the community level in Rwanda: availability, accessibility, affordability, acceptability, and accommodation. Second, I identify specific strategies employed by these volunteer health workers to facilitate equitable access to maternal health services while operating in a low resource setting. Third, through the lens of an ethics of care framework, I examine why women decide to become maternal community health workers and how they are selected in their communities to take on this responsibility. Overall, this research suggests that community participation is valuable for promoting maternal health outcomes but raises health equity concerns for the nature of the maternal community health worker role. Such concerns shape the program's sustainability and may impact the overall efforts to enhance positive maternal health outcomes in Rwanda. Further research is needed to explore other aspects of community participation in maternal health, such as the involvement of local leaders who work closely with maternal community health workers to enhance the success of this program.

Keywords: Access**;** maternal care**;** community health workers; informal care; equity; Rwanda

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Chapter 1.

Introduction

Rwanda, a mountainous landlocked country in Central Africa has picturesque landscapes in all four corners, thus earning it the nickname the country of 'a thousand hills'. However, that beauty comes with pitfalls: navigating within and between communities can be challenging, especially for those with mobility impairments. Growing up in Rwanda, I was well aware of how physical accessibility impacted my life. For example, I knew what time I should leave for school or appointments depending on the condition of the roads. I learned from a young age that I would need to adjust my walking speed depending on the elevation, and that during the rainy season I should expect to see abandoned vehicles stuck in the mud. As I started to develop my skills as a health researcher, I became increasingly aware of different ways in which Rwanda's beautiful landscapes can actually affect people's access to health care.

In this dissertation I explore Rwandan women's experiences of accessing maternal health care at the community level and also of providing this form of care. My own experiences of accessing school, health care, social supports and other formal services in Rwanda have played a role in me understanding the critical importance of this research topic. In this dissertation research I have sought to explore not only the challenges women face to get to health care appointments but also to see what measures are being put in place, using available resources, to facilitate the utilization of maternal health care services for positive outcomes for mothers and their babies.

I start this chapter by giving an overview of Rwanda's maternal health. I next discuss the inequities in maternal health in the country, followed by a section on global maternal health goals and governance. Next, by situating my research in the field of health geography, I discuss the primary health care geographies of maternal health and, in doing so, I introduce Rwanda's community health workers (CHWs). The last section of this chapter gives an overview of my dissertation: research objectives and questions;

study design; study area; and the dissertation structure and concludes with an introductory reflection on my positionality as a researcher in Rwandan communities.

1.1. An overview of Rwanda's maternal health

In its efforts to develop and rebuild the country after the 1994 genocide, Rwanda adopted a policy of decentralization that was applied to different systems, including the healthcare system. As illustrated in Figure 1, at each level of local administration there is a corresponding healthcare provision entity, from the village to the provincial level. A few exceptions apply at the cell and provincial levels, where there is not always a healthcare provision entity, depending on the needs and available resources (NISR, 2015). At the national level, there are four hospitals that offer tertiary level healthcare: two teaching hospitals, one military hospital and a semi-private hospital. In the field of maternal healthcare, M-CHWs provide basic primary healthcare services to women in their villages, which is the lowest local administrative healthcare level in Rwanda. The rest of primary maternal healthcare services, including family planning, antenatal care, immunization, non-complicated delivery, and post-partum care, are provided at the health centre (NISR, 2015).

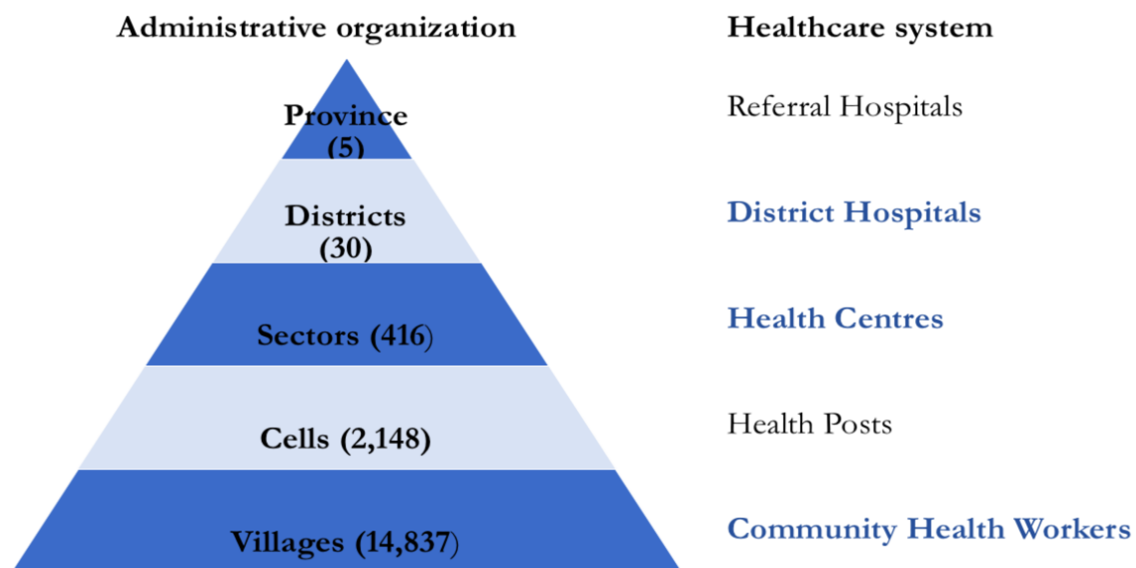

Figure 1. Local administration and healthcare system in Rwanda

Health centres, which are run by nurses, oversee a population of about 20,000 people who live within 2-3 hours of walking distance from the health centre. There is one health centre per sector and each health centre oversees the activities of M-CHWs in its operating zone (Binagwaho et al., 2014). Advanced maternal healthcare is provided at district hospitals through transfers from health centres. Advanced care is provided by general physicians and assisted by nurses and midwives, along with other paramedical practitioners such as anesthetic technicians and lab technicians. Rwanda is divided into 30 districts, and each district has at least one district hospital (Binagwaho et al., 2014). Cases that cannot be handled in district hospitals are transferred to referral hospitals. In most cases, district hospitals transfer such cases to national-level referral hospitals. However, a few provinces now have provincial hospitals that are equipped with specialists to provide advanced care (Bucagu, 2016).

In Rwanda, maternal healthcare services, along with other health services, are covered under the universal health care system (Condo et al., 2014). The community-based health insurance, commonly known as *mutuelle de santé*, was established in mid-2000. By the end of 2010, it was made mandatory and there was country-wide coverage of more than 90% of the total population. Premiums under the scheme are paid according to each family's income, so the government provides free insurance to the poorest and the wealthiest pay more (Binagwaho et al., 2014). Maternal healthcare services offered by M-CHWs are free, and services offered in health centres are paid via a one-time token of Rwf 200 [0.21 USD] per visit (Condo et al., 2014). Services offered in hospitals are subsidized by the government, which covers 90% of the total costs (Binagwaho et al., 2014).

Counted among countries with a high maternal mortality ratio, Rwanda has shown tremendous effort by achieving target A of millennium development goal (MDG) #5, which called for a reduction of the maternal mortality ratio by three-quarters between 1990 and 2015 (Bongaarts, 2016). Rwanda experienced decreases in maternal deaths per live birth from 1020:100,000 to 567:100,000 from 2000 to 2005, and from 381:100,00 to 290:100,000 in the period 2010-2015 (Bongaarts, 2016). A number of initiatives have contributed to the reduction of maternal deaths, including the integration of CHWs into

the health system and involving them in primary health care service provision (Condo et al., 2014).

Despite the progress that has been observed, the process of reducing maternal deaths in Rwanda is still far from complete. As such, the Rwandan Ministry of Health encourages variety in the maternal health care services offered (Condo et al., 2014) due to the fact that some women still face barriers to accessing adequate maternal health care (Kpienbaareh et al., 2019). Barriers can be related to social-cultural dynamics, including household demands that fill up women's days and leave little time for going to health facilities (Tuyisenge et al., 2019). Economic factors can also be a limitation to access to maternal health services, including direct and indirect costs related to the use of maternal health services (Binagwaho et al., 2014). Indeed, these barriers are not specific to Rwanda and have been documented across several countries with different socio-economic contexts (Adams, Nababan, & Hanifi, 2015; Bbaale, 2011; Teijlingen et al., 2012).

In order to promote the use of maternal health services in Rwanda, CHWs in charge of maternal health (maternal community health workers – M-CHWs) were introduced in the country's health system in 2003 (Condo et al., 2014). M-CHWs are volunteers elected by their communities to help link women to the formal health system. They provide educational services related to maternal health, including raising awareness about the appropriate use of health services during pregnancy, delivery, and right after (Tuyisenge, Crooks, & Berry, 2019). In Rwanda, community health workers, including M-CHWs, are an integral part of the health system (Binagwaho et al., 2014). Hence they are dispatched across the country to participate in the reporting channel (Bucagu, 2016). Studies looking at the roles of CHWs in contributing to positive health outcomes in Rwanda are needed in order to provide evidence for decision-making about this program. My dissertation aims to provide such evidence.

1.2. Maternal health inequities

For decades, maternal health has been reported to have the highest discrepancy among all commonly reported health indicators (Alkema et al., 2016; Say et al., 2014). For example, 1 in 30,000 women dies of maternal related causes in Sweden versus 1 in 6 in Afghanistan (Say et al., 2014). Resources to improve maternal health are unevenly spread, especially between countries in the Global North and Global South, but also within nations. Overall, maternal deaths are most prevalent among the poorest people within and between countries (Graham et al., 2016). This is demonstrated by the differences in maternal mortality between Global North and Global South countries, between rural and urban women, and between relatively wealthy and relatively poor women within the same countries (Alkema et al., 2016; Say et al., 2014). Social determinants of health including ethnicity, education, gender among others all impact maternal health outcomes and stress the inequities in maternal health utilization that in return impact maternal health outcomes (Tuyisenge et al., 2019).

It is widely known that most maternal deaths are preventable if determinants such as poverty, inadequate access to food and sanitation, and health care access barriers are alleviated (Hogan et al., 2010; Shah & Say, 2007). Factors such as economic growth, urbanization, and health crises are projected to have impacts on maternal health in low- and middle-income countries (LMICs). For example, it is projected that by 2035, many low-income countries will have migrated into the grouping of middle-income countries as a result of development efforts (Stenberg et al., 2017). The economic growth of these countries will have an impact on their maternal health, likely improving health outcomes (Stenberg et al., 2017). However, such improvements will be marginal if a true and meaningful investment in maternal health is not made (Obaid, 2009). Another factor that should be considered is the unprecedented growth of urban populations in the Global South, which calls for paying a closer attention to the disparities of maternal health within urban areas (Alam, Hajizadeh, Dumont, & Fournier, 2015; Liang et al., 2011). Only a few countries in the Global South (e.g., South Africa, Bangladesh, and India) have started programs looking specifically to improve maternal health among the urban poor (Adams et al., 2015; Van der Hoeven M, Kruger A, 2012). These programs can be an

example to different countries, especially those experiencing high rural-urban mobility. Further to this, disease outbreaks, natural disasters, health worker outmigration, and conflict, among other factors, heavily affect maternal health outcomes in countries with limited health systems (Kruk et al., 2016). For example, during the Ebola outbreak, the maternal mortality ratio doubled in Guinea and Sierra Leone (Urdal & Che, 2013). Concomitantly, displaced women face poor maternal health outcomes (Devakumar, Birch, Osrin, Sondorp, & Wells, 2014). It is important to note that the recovery from outbreaks or disasters is often accompanied by increased fertility, hence increasing demand in often strained maternal care systems (Elston, Cartwright, Ndumbi, & Wright, 2017).

To achieve better maternal health outcomes, it is imperative that government focus on improving access to maternal health for the most vulnerable women through equitably enhancing their access to care (Kruk et al., 2016; Van der Hoeven & Kruger, 2012). Rwanda has aimed to do this through the CHW program, which is supported by the formal health system and a national health care insurance scheme that individuals pay into. It is widely acknowledged that such insurance schemes play a role in promoting maternal health outcomes across different communities (Bucagu et al., 2012). However, even women who do not pay into the scheme are able to access the services of the volunteer, yet elected, CHWs.

1.3. Global maternal health goals and governance

Maternal health remains one of the most prominent global health challenges. In 2015 alone, it was estimated that over 300,000 women died due to complications from pregnancy and childbirth globally, and nearly all of these deaths (99%) occurred in low and middle-income countries (LMICs) (World Health Organization, 2015). The World Health Organization (WHO) reports that the leading causes of maternal mortality are hemorrhage, infections, hypertensive disorders, obstructed labour, and unsafe abortion (Organization, 2015). The leading causes of maternal mortality are similar, but vary across different places. For example, Say et al. (2014) noted that each year, about 47,000 women in Sub Sahara Africa (SSA) die from unsafe abortion, accounting for 13% of total

maternal deaths in this region. Additionally, African countries had the highest rate of maternal deaths due to sepsis (27.1%), followed by those in Latin America, with a rate of 20.6% (Say et al., 2014). Maternal healthcare inequities across and within regions have been reported to be the reason behind the global disparity in maternal mortality outcomes (Ronsmans and Graham, 2006). In order to understand what progress has been made towards improving maternal health in LMICs, we must understand what has and has not worked and what is missing, in order to improve maternal health outcomes. The current dissertation offers this much-needed analysis through a spatial focus on maternal care at the village level in Rwanda, a country that is striving to improve its maternal care outcomes through heavy reliance on elected community volunteers.

Maternal health practice and research in Africa specifically—and LMICs more generally—received close attention following the International Conference on Population Development held in Cairo, Egypt, in 1994 (Lassi, Kumar, & Bhutta, 2016). The need to have maternal health discussions at the conference builds on the earlier Safe Motherhood Initiative, launched in 1987 in Nairobi, Kenya (Perry, Zulliger, & Rogers, 2014). The two initiatives had divergent approaches to improving maternal health, which resulted in a lack of measurable progress in reducing maternal mortality (Obaid, 2009). Recognizing the need to improve maternal health, especially in the most affected areas, the United Nations included maternal health on the agenda of development goals to be targeted globally through the Millennium Development Goals (MDG) (Van den Broek & Falconer, 2011). The MDG on maternal health, MDG 5, had two targets: a) reducing by three-quarters maternal deaths from 1990-2015 and b) achieving universal access to reproductive health (Hampshire et al., 2016; Van den Broek & Falconer, 2011).

By 2015, which marked the end of the MDGs, very few countries managed to meet either or both targets of MDG 5 through reducing maternal mortality (target A) and/or improving access to reproductive health care (target B). While global rates of maternal mortality had decreased from 532,000 in 1990 to 303,000 in 2015 (Graham et al., 2016), only nine countries were able to achieve MDG 5. Examples of strategies used by some these countries to meet MDG 5 include good leadership, such as decentralization programs and having more women in leadership roles in Rwanda; partnerships between

government institutions and different international organizations in Bangladesh; and collaboration with other sectors outside health such as the infrastructure sector, which helped to improve roads in rural parts of the Lao People's Democratic Republic (Ahmed et al., 2016). These strategies to achieve better maternal outcomes are directly or indirectly linked to enhancing access to maternal healthcare. In the context of MDG5, most countries had slow or no improvement, and three countries have experienced increased maternal mortality over the last twenty-five years (Graham et al., 2016).

The current global agenda to improve maternal health outcomes is included in the Sustainable Development Goals (SDG), within goal 3 seeking to *"Ensure healthy lives and promote well-being for all at all ages"* (Buse & Hawkes, 2015). With a focus on people, place, prosperity, peace, and partnership, the SDG on maternal health incorporates a wider range of stakeholders than MDG 5 (Buse & Hawkes, 2015). Moreover, the SDGs acknowledge an interconnectivity between health and other global issues such as poverty reduction, gender, and conflict, while emphasizing improved health equity to achieve better health outcomes (Tangcharoensathien, Mills, & Palu, 2015). Doing so requires collaboration across multidisciplinary actors to work simultaneously on maternal health issues between and within nations to ensure equitable access to maternal health care services. This expanded scope includes family planning programming as well as building education and training capacity around sexual and reproductive health (McDougall, 2016). The way that such opportunities play out in practice varies heavily within and between countries.

1.4. Primary health care geographies of maternal health

My dissertation research is situated in the field of health geography, a sub-discipline of human geography (Kearns & Moon, 2002). Health geography focuses on the relationships between place and space and health concepts and how the two impact health outcomes (Andrews & Crooks, 2010). Some areas of health geography research include the social determinants of health, primary health care, population movement, and environmental health (Kearns & Collins, 2010). Health geography originated from medical geography, a sub-discipline of human geography that specializes in the

dispersion of diseases as well as access to health services (Meade, 2014). Medical geographers are mostly concerned with the role of space (a specific location on earth) and how it affects health, by the diffusion of diseases or by how distance to a health facility could affect access to health care (Crooks & Andrews, 2009; Crooks & Winters, 2016). In the late 1980s, some health geographers brought forth the idea that the relationship between health and place was more complex than what was being captured by medical geography research, and that social science-informed approaches and methods needed to be infused in the sub-discipline (Kearns & Moon, 2002). From then, the notion of the place was re-visited as well as its effects on health through different and complex variables and characteristics (Crooks & Andrews, 2009). The hypothesis was that the health of an individual or a group of individuals is influenced by their socioeconomic status in the places where they live (Bambra, 2018). Place in this context has a wider meaning, and health geographers started to incorporate social and wellbeing-informed approaches in their research (Kearns & Collins, 2010). My dissertation draws heavily on a social understanding of health to explore how informal caregivers, known as community health workers, live out and experience informal care provision in the resource-limited context of Rwanda's maternal care system.

For decades, health geographers have made contributions to different aspects of the field of maternal health. Among these contributions are studies that have been conducted in SSA to look at various forms of access to maternal health care. For example, Atuoye et al. (2015) reported the experiences of rural and urban women regarding access to maternal health care in Ghana, where they highlighted an association between geographical, financial, and social determinants of health on access to maternal healthcare. Such determinants were mostly studied using quantitative and Geographic Information System approaches in different countries (Bailey et al., 2011; MacQuillan, Curtis, Baker, Paul, & Back, 2017; Makanga, Schuurman, von Dadelszen, & Firoz, 2016), even though studies exploring the deeper context of these determinants were also conducted using qualitative and mixed methods approaches (Makanga et al., 2017).

In the contexts of both health geography and maternal health, there are gaps in understanding why some women still experience poor maternal health outcomes and

others do not, even if they live in the same country/place. In this dissertation I aim to address some of these gaps through highlighting various spatial aspects associated with the provision of maternal care at the village level in Rwanda. These spatial aspects range from the close proximity of care providers to recipients and the implications of this for an ethics of care within the mountainous terrain that poses physical barriers to access to the formal care system.

Geography is an essential facet of health care access, health inequalities, and how they are linked to the socio-political context of places where people live (Kearns & Collins, 2010; Kearns & Moon, 2002), including for primary health care practice. For example, the local and embedded nature of primary health care brings attention to the notion of place and how community structures impact health outcomes (Kearns & Collins, 2010), including for maternal health. Primary health care intersects with different sectors of health, including both service providers and seekers at all system levels, and brings attention to the intersection of different aspects that contribute to health outcomes (Andrews & Crooks, 2010). In this sense, primary health care is a highly geographic or spatial form of care provision. It involves the organization and delivery of first-contact health care services at the most local level (Andrews & Crooks, 2010; Crooks & Andrews, 2009). In my dissertation I conceptualize community-based maternal health care in Rwanda as a form of primary health care provision that is provided by informal caregivers.

1.5. Introducing Rwanda's Community Health Workers

In most cases, CHWs live in the communities in which they serve and are elected by other community members to champion selected health initiatives, through promotional and preventive services (Scott et al., 2018a). They are typically volunteers, or informal caregivers, and do not have or receive any formal health care training (Haver, Brieger, Zoungrana, Ansari, & Kagoma, 2015). Involving the community in maternal health has the advantage of bringing carers closer to where the need is, especially in places where most deliveries happen in homes without the assistance of a skilled birth attendant (Bucagu et al., 2012; Shah & Say, 2007). A study conducted in Bugesera

district, Rwanda (Joharifard et al., 2012) on the role of CHWs in providing maternal health education in the community revealed that 43% of women reported that a CHW visited them at least once during the course of their pregnancy and 95% of respondents stated that CHWs told them the benefits of delivering in health facilities. Though some studies have documented the ways CHWs have been able to improve maternal health outcomes, there has been little research exploring their specific roles and how they are undertaken (Musabyimana et al., 2018; Scott et al., 2018). In maternal health, CHWs have been playing crucial roles in educating women on maternal health and promoting access to skilled birth attendance. My dissertation assists with understanding nuanced aspects of Rwanda's maternal CHW roles, responsibilities, and the barriers and facilitators they face when undertaking this care work.

A review of CHW interventions in maternal health programs in four countries - Afghanistan, Nigeria, Nepal, and Rwanda - provides an overview of the maternal health services provided by CHWs in each country as part of their primary health care package (Haver et al., 2015). In Afghanistan, CHWs provided maternal care during pregnancy and post-partum periods, paying one visit during the eight months of pregnancy and four visits during postpartum. In Nigeria, CHWs are used for community-directed interventions for malaria control due to the country's high rates of malaria morbidity globally; the interventions of CHWs in Nigeria focus on how malaria impacts the lives of mothers and maternal health in general. In Rwanda, CHWs contribute to record-keeping, in addition to providing maternal health education and basic family planning. In Nepal, CHWs participate in preventing postpartum hemorrhage at home after delivery. These examples show the varied ways in which CHWs can participate in improving maternal health by providing health services at the community level. However, the fact that CHWs are volunteers with no formal education or training on maternal health and with considerable workloads introduces challenges regarding what type of care they can provide (Tuyisenge et al., 2019). Moreover, despite the remarkable results of CHWs' program contributions, the program is not yet scaled up to the country level in many LMICs and is often run in a patchwork fashion (Hategeka, Tuyisenge, Bayingana, & Tuyisenge, 2019). Rwandan policymakers need to revisit this and strengthen national approaches to achieving better maternal health outcomes from the community level and

up, and this dissertation assists with providing some of the evidence necessary to build traction in this regard.

1.6. Dissertation Overview

1.6.1. Research Objectives and Questions

This dissertation research is focused on community-level maternal care provision in Rwanda. I sought to address two main objectives, which were to:

1. Identify micro-scale (i.e., at the scale of lived experience) factors that facilitate or detract from women's access to maternal health care at the community level;

2. Explore the micro-scale factors that facilitate or detract from maternal community health workers' abilities to provide equitable maternal care at the community level.

Three central research questions informed these objectives, which ask:

1. What are the structural, geographical, social-cultural, and economic factors that act as facilitators or barriers to accessing maternal health services at the community level in Rwanda and how do they relate to conventional understandings of access to care?

2. What are the specific strategies that maternal community health workers employ to provide equitable maternal care while operating in a low resource setting?

3. How are maternal community health workers selected in their communities and what motivates women to take on and fulfil this voluntary role?

1.6.2. Study design

This dissertation research uses a qualitative case study approach to address the above-stated objectives and research questions. Using a qualitative study approach in health geography research helps to study complex aspects of the health-place relationship in their context (Baxter & Jack, 2008). Broadly speaking, qualitative inquiry allows for the exploration of social or human problems using methodological traditions and tools to

understand the complex nature of the people, places, and/or issues of focus (Petty, Thomson, & Stew, 2012). The case study methodology is focused on understanding a particular issue or experience within the context in which it has emerged or operates (Crowe et al., 2011). Studies employing case study methodology typically rely on multiple methods and involve data collection with multiple groups in order to gain a full sense of the scope of the issue being examined (Starman & Biba, 2013), which is consistent with the design I employed.

1.6.3. Study area

This study was conducted in five Rwandan districts: Gasabo and Nyarugenge districts in Kigali City Province; Gakenke and Rulindo in the Northern Province; and Ruhango in the Southern Province. The districts from both the Northern and Southern Provinces were purposefully chosen as they are the districts taking part in the intervention project that funded my PhD program, called Training, Support and Access Model (TSAM) for Maternal, Newborn and Child Health. Through a four-year grant from Global Affairs Canada, running 2016-2020, TSAM's overall objectives are to contribute to the improvement of maternal, newborn, and child health outcomes in Rwanda and Burundi. Most of the project's contributions involve the capacity-building of health professionals, which consists of providing pre-service and in-service training in the areas of maternal, newborn, and child health as well as cross-cutting themes. The project operates mostly in rural parts of the country, where slower progress in maternal and child health is reported. I added data collection in two urban districts in order to offer both urban and rural perspectives on the research objectives and questions. While my project is funded by TSAM, this study and its design is my own. By this I mean that TSAM provided me with the latitude to design my own dissertation study while supporting me by connecting me with health centres and thus potential participants.

1.6.4. Data Collection

This dissertation research uses primary data collection from in-depth interviews with maternal community health workers (M-CHWs) and women who used their

services. Exploring the barriers to accessing maternal health care with mothers and M-CHWs calls for an environment within which participants are comfortable enough to share their experiences and perceptions, as they might not be comfortable sharing such information in a group setting (Baxter & Jack, 2008). For this reason, interviews were conducted in a location of the participant's choosing, which was always their house or a health centre. I acknowledge that there are limitations to in-depth interviews as a method of data collection. Since the information is collected from different individuals, it is hard to directly compare the results because each individual has their own experiences (Braun and Clarke, 2014). However, I believe this limitation is offset by the rich data generated through the interview process.

I conducted 43 in-depth interviews between June and August, 2017, including 22 interviews with M-CHWs and 21 interviews with women who have used their services. The guides I used to structure the interviews can be found in the Appendices of this dissertation. I asked women who had been pregnant or delivered a baby within one year of the interview date who were over the age of 18 to participate, along with women who were currently serving as an M-CHW for their village or community. Recruitment was conducted by the community health worker coordinators working in local health centres. These coordinators were first contacted by on-site representatives of the Training, Support and Access Model (TSAM) Project for Maternal, Newborn and Child in Rwanda in order to inform them about the study and make arrangements for recruitment. Community health worker coordinators distributed written and verbal information about the study to M-CHWs as well as women they knew who met the participation criteria. To build rapport with potential participants, I arranged to meet with interested women and M-CHWs to explain the study further, answer questions, and schedule interviews. While establishing a relationship with participants, I explained to them the goals and reasons for conducting the research.

Interviews with most participants took place at the nearest health centre and they were scheduled on an immunization day. They started with a review of the study's goals and a discussion of their rights as a participant in the study. I next obtained verbal consent for their participation. The interviews proceeded in a conversational manner to

facilitate open dialogue and were guided by a semi-structured interview guide that allowed participants to speak to topics not addressed by my questions. Broadly, the guides included open-ended questions to elicit views from women, including their understanding of maternal health and factors that affected women's health during pregnancy and after childbirth, as well as factors that contributed to their use of and access to maternal health care services. To understand who the participants were, demographic information was collected (e.g., age, gender identity, education attainment, marital status and number of children). Body language and non-verbal communication were observed, and field notes were taken.

Interviews were first conducted in Gasabo district in order to pilot the recruitment process as well as the guide. Following completion of these initial interviews, the guide was revised in order to refine the questions asked and add additional questions regarding the emerging issue of exploring how and why women became M-CHWs. There was no target number of participants. Instead, recruitment had a temporal cutoff which ended when I was no longer in the district or country. The interviews were audio-recorded with the participants' permission and were 45-70 minutes in length.

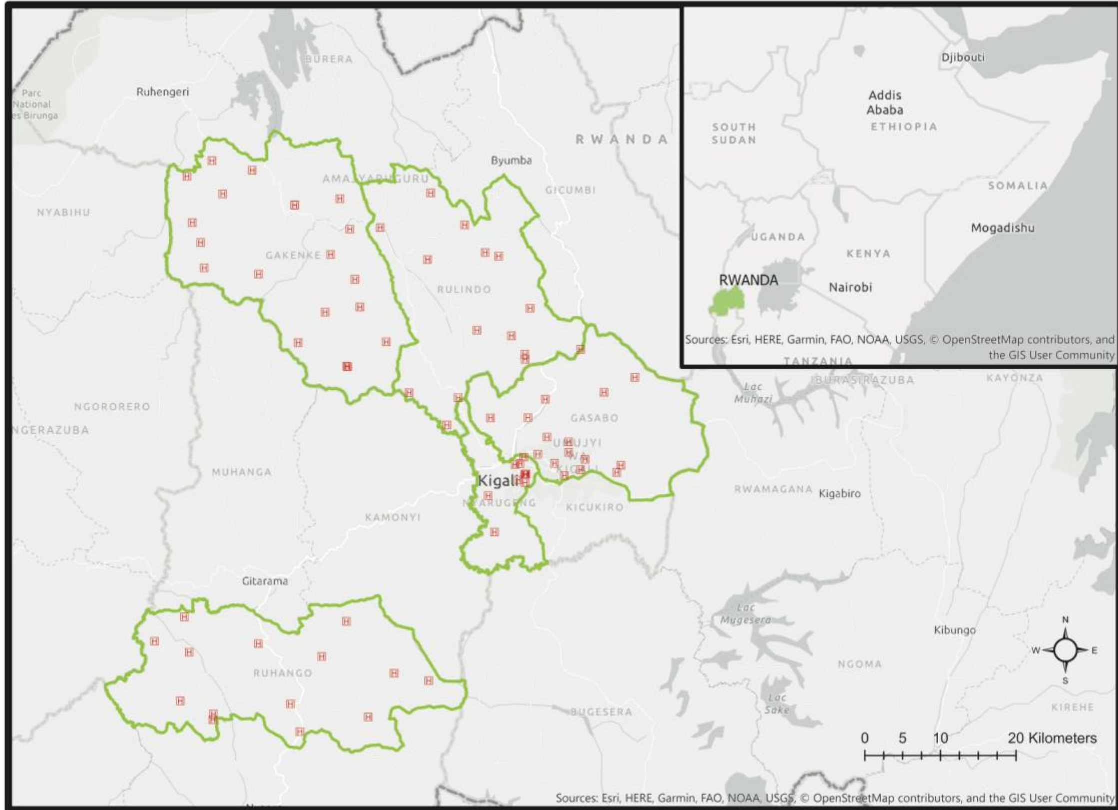

Figure 2. **Districts where data were collected**

1.6.5. Dissertation structure

My dissertation is anchored around three first-authored scholarly outputs that address different facts of the overarching objectives and research questions. Following the current chapter, Chapter 2 has been accepted for inclusion in an edited book *Practicing Health Geography: The African Context*. Bridging Chapter 3 highlights community-based initiatives that have been put in place to promote maternal health in Rwanda. Chapter 4 is a co-authored article I led for the *International Journal for Equity in Health*. Bridging Chapter 5 explains the interventions of the TSAM project in strengthening the CHW program. Chapter 6 is a co-authored article I led that is currently under review for publication in *Social Science & Medicine*. Finally, Chapter 7 is a concluding chapter where I draw ideas, observations, conclusions, and implications for future research from across the analytic chapters (Chapters 2, 4, and 6).

Chapter 2 explores the structural, geographical, social-cultural, and economic factors that act as facilitators or barriers to accessing maternal health services at the community level in Rwanda. Using the five dimensions of access to health care (availability, accessibility, accommodation, affordability, and acceptability), I qualitatively explore community dynamics shaping women's access to community maternal health services in both rural and urban settings by drawing on 21 in-depth interviews I conducted with Rwandan women living in the communities of focus. Interviews were conducted in the Kinyarwanda language (the national language in Rwanda). I used thematic analysis to extracting key themes that emerged from the datasets. I also examine the roles of CHWs, who are elected by their communities to provide maternal health services to women and assist women with overcoming these barriers, and link communities to the formal health care system.

Chapter 3 elaborates on some of the community-based initiatives that aim to promote maternal health in Rwanda. Several initiatives have been scaled up to the country level, and others are specific to different communities depending on each community context and needs. Most of these initiatives are coordinated by maternal CHWs in collaboration with local leaders.

Chapter 4 draws on the findings from in-depth interviews with maternal health CHWs and observational insights in five Rwandan districts and identifies specific strategies CHWs employ to provide equitable maternal care while operating in a low resource setting. Four key themes emerged during the analytic process that characterize the contexts and strategic ways in which maternal health CHWs facilitate equitable access to maternal care in an environment of resource scarcity. These themes are: 1) community building; 2) physical landscapes, 3) the post-crisis socio-political environment in Rwanda; and 4) circumventing constraints. Rwanda's maternal CHWs are heavily responsible for promoting equitable access to maternal health services. Consequently, we show how they may be required to use their personal resources for their practice, which can jeopardize their own socio-economic welfare and their capacity to meet the demands of their families.

Chapter 5 highlights the contributions of the TSAM project in promoting Rwanda's maternal health. More specifically, this chapter focuses on interventions aimed at capacity building for maternal CHWs. These capacity-building interventions were implemented in 2018 and 2019, which were the final funded years of the project.

Chapter 6 explores how and why women opt to become maternal CHWs despite the significant demands of this informal care role. I conducted semi-structured interviews with 20 such workers in five Rwandan districts to understand how they are selected for this voluntary position, what motivates them to fulfill their responsibilities, and to gain insight into their experiences of providing maternal health services using limited resources. This analysis begins by acknowledging that the maternal CHW role is formed around particular care ethics that are shaped by many factors, including the close geographic proximity between care providers and recipients. Thematically exploring the findings using an ethics of care lens, I highlight how responsibility, vulnerability, and mutuality inform the place of these workers' roles in the maternal care system and their decisions to become maternal CHWs. I conclude by acknowledging that the development of informational interventions could assist with ensuring that women make informed decisions regarding becoming maternal CHWs.

Chapter 7 concludes this dissertation by highlighting and reflecting on the objectives and research questions, stating the study limitations and highlighting pressuring areas for future research directions. In this chapter, I also reflect on my positionality as a researcher.

1.6.6. An introductory reflection on positionality

Social scientists often advocate for recognition that researchers influence research practice in many complex ways (Carstensen-Egwuom, 2014), and I agree. My positionality has shaped this dissertation research in numerous ways. Even though I was born and raised in Rwanda, speak the language, and am very familiar with the culture and communities, I consider myself as an insider-outsider to the topic of maternal health and women I talked to during this research. For example, I have never needed to access

maternal care in Rwanda, meanwhile many participants asked me about my own lived experiences of this care or of having or raising children in Rwanda. In some cases, my outsider position may have made my participants consider me as not knowledgeable in the area of pregnancy and motherhood. This likely shaped their responses to my interview questions. However, I believe that through my experience working in the Rwandan health sector and my familiarity with the culture, I was able to lead the discussions in a way that put participants at ease for them to share information on maternal health with me. I used this knowledge to build trust and establish interest in the topic.

My research represents the voices of participants who, in most cases, were rural women of disadvantaged socioeconomic status. The findings of this study give an image of what access to maternal health looks like in some communities of Rwanda and on the role of a community-based initiative to improve maternal health outcomes. I believe my role as a researcher is to be respectful of the values and customs of the researched communities and ensure I stay true to the information shared by participants as I interpret and share the findings of this study (Carstensen-Egwuom, 2014). I have used my insider-outsider positioning to shape my practice as a researcher.

Chapter 2.

‘In a rainy season the roads can get to slippery…’: Access to maternal health care in a low-resource Rwandan setting

This chapter is in press as part of the volume *Practicing Health Geography: The African Context*, edited by Prestige Tatenda Makanga, to be published by Springer in 2020.

2.1. Abstract

Access to health care is essential to achieving the best health outcomes. In this chapter, I highlight the structural, geographic, social-cultural, and economic factors that act as facilitators or barriers to accessing maternal health services at the community level in Rwanda. Using five dimensions of access to health care (availability, accessibility, accommodation, affordability, and acceptability), I qualitatively explore community dynamics pertaining to women’s access to community maternal health services in both rural and urban settings. I also examine the role of volunteer community health workers, who are elected by their own communities to provide maternal health services to women, and link communities to the formal health care system.

Keywords: Access, barriers, facilitators, maternal health, health care, community health workers, Rwanda

2.2. Introducing access to health care

For decades, researchers and policy makers have tried to conceptualize the notion of ‘access’ as it relates to health care services in order to better understand the ways in which access (or inaccessibility) shapes health outcomes (Schuurman, 2009; Saurmam, 2016 & Bambra, 2018) . Even though much progress has been made, there is no single conventional definition of access to health care. Instead, many definitions have been provided that reflect varying local contexts and disciplinary concepts. Khan and Bhardwaj (1994) point out that this has led to vastly different understandings operating simultaneously about what it means to have access. A common approach to understanding access involves conceptualizing factors that contribute to access and the ways in which they interact to shape different outcomes. Penchansky and Thomas’s (1981) widely-cited concept of access, for example, highlights five dimensions that need to be considered: *availability* of services such as health facilities and the number of care providers; *accessibility,* which is related to the physical location where people live and seek health services and how they get to those services; the *accommodation* of clients’ needs; *affordability* in terms of the ability to cover the direct and indirect costs of care; and *acceptability,* which is related to the personal characteristics that influence clients’ attitudes towards health care (Evans, Hsu, & Boerma, 2013; Penchansky & Thomas, 1981).

In some cases, different terminologies are employed interchangeably to reference Penchansky and Thomas’ (1981) essential dimensions of access, which are also called “the 5As of access.” For example, ‘approachability’ is sometimes used to refer to accessibility; ‘adequacy’ is used for availability, and ‘accommodation’ and ‘appropriateness’ are used interchangeably for acceptability (Gulliford et al., 2002; Levesque, Harris, & Russell, 2013). Moreover, Saurman (2016) advocates for expanding Penchansky and Thomas’ concept (1981) in order to develop a better understanding of the complex nature of access. For example, some authors have advocated to add ‘awareness’ to the list of dimensions of access, to acknowledge its impact on access, especially in the context of rural and remote settings with little exposure to health

services and where populations might not be aware of health services available to them (Saurman, 2016; Ward, Humphreys, McGrail, Wakerman, & Chisholm, 2015).

2.3. Access to maternal health: The context of Sub-Saharan Africa

Maternal health remains one of the biggest challenges in the global health fields (Bongaarts, 2016). An estimated 830 women throughout the world die daily from pregnancy-related causes, but the majority of these deaths are preventable (Alkema et al., 2016). It is reported that 99% of these deaths are experienced by women in low- and middle-income countries, which speaks to the need for these populations to receive improved and timely access to skilled health care before, during, and after delivery (Berry, 2009; Filippi et al., 2006). More specifically, more than half of global maternal deaths occur in Sub-Saharan Africa (SSA), a region that has disproportionately poor maternal outcomes due to the low socio-economic status of its population, poor health systems, poorly developed health infrastructures, low doctor-patient ratios, presence of health inequities, and the high cost of health care (Alkema et al., 2016). Tey and Lai (2013) argue that poor maternal outcomes in SSA are associated with poor access to maternal health services as well as poor utilization of those services. The authors argue that more than half of births in SSA are assisted by non-skilled birth attendants, such as community health workers (CHWs), and take place outside health facilities. It has been found that the lack of a sufficient number of skilled pre-natal care and home-based deliveries is among the major causes of death during pregnancy and childbirth in most rural parts of SSA (AbouZahr, 2014). Factors associated with distance, the cost of transport, and a woman and her family's (partner and extended family) perceived need to use health facilities have been reported to influence access to maternal health services.

There are many factors, other than those mentioned above, associated with poor access to maternal health services in SSA countries. A number of studies have been conducted on the barriers to and facilitators of access to maternal health services in SSA (Babalola & Fatusi, 2009; Fotso et al., 2009). For example, Atuoye et al. (2015) have found that in Ghana, spatial access – which refers to the travel time and means to reach a

health care facility – is affected by distance to the health facility, road conditions, the availability of transport, and weather conditions. This is further emphasized by Arku, Mkandawite, Luginaah, and Baiden (2013), who found that poor spatial access to health facilities in Ghana makes it difficult for mothers to access maternal health care in a timely fashion. Although spatial access to maternal health varies across regions in SSA, disparities are observed within and between many countries. Makanga et al. (2017) note that spatial-temporal factors should be considered when examining access in the SSA context. They state that poor road conditions due to inclement weather has a significant impact on access to maternal health care, regardless of the mode of transport. They also note that most rural women in Mozambique walk or use public transport to reach the nearest health facilities. These two modes of transport are not reliable during the wet weather season, at which time a drop in the numbers of people using health facilities has been observed.

2.4. Exploring barriers and facilitators to community-level maternal health care access in Rwanda

In Rwanda, primary health care services, including antenatal care and delivery services, are provided at the health centre by nurses. In addition, each health centre coordinates the activities of CHWs operating in its catchment area (there are about 120 CHWs per health centre). The role of CHWs in improving access to maternal health care in the country, as a form of primary health care, has been remarkable and led to a considerable increase in the use of antenatal care in the past ten years (Joharifard et al., 2012). The involvement of CHWs in maternal health contributed to an overall decline in the maternal mortality ratio (MMR), from 567 in 2005 to 290 in 2015 (Bongaarts, 2016). Rwanda is among the countries that have made tremendous progress towards the improvement of maternal health (Condo et al., 2014). Progress was observed in the early 2000s, as the country was rebuilding its health system and other infrastructure that was destroyed in the 1994 genocide against Tutsis. However, Rwanda's MMR remains among the highest worldwide (Bucagu, 2016), which calls for a stronger investment in the promotion of maternal health outcomes.

In the remainder of this Chapter, I report on the findings from interviews conducted between June and August, 2017 that explored Rwandan women's experiences of access to maternal health services offered by maternal community health workers (M-CHWs), CHWs in charge of maternal health care. I conducted these interviews at health centres in five districts: Nyarugenge and Gasabo districts in the capital city, Kigali; Gakenke and Rulindo districts in the Northern Province; and Ruhango district in the Southern Province. Participants were recruited with the help of community health coordinators at the health centres in each district. In total, I collected data from ten health centres (two in each district): Bumbogo and Gatsata in Gasabo district, Gitega and Kimisagara in Nyarugenge district (Kigali); Ruli and Nemba in Gakenke; Shyorongi and Kinihira in Rulindo; and Byimana and Kinazi in Ruhango. Three of the ten health centres serve an urban population – Gatsata, Gitega, and Kimisagara – and the rest are located in rural parts of the country.

A total of 21 in-depth interviews were conducted with women between the ages of 19 and 39. The inclusion criteria were for participants to be at least 18 years old, be either pregnant or have had a healthy baby within the past year, and to have used village M-CHW services. Participants were either married or single, and their level of education ranged from the completion of primary education to a few years of secondary school. All but two had between one and five children between the ages of 6 months and 12 years. The two other participants were pregnant for the first time. Most reported farming as their main income-generating activity. The remaining few were stay-at-home mothers, tradespeople, artisans, or workers at wage-earning jobs. The following sub-section highlights factors that facilitate or impede the access to maternal health services at the community level, as reported by the women. I report these factors through the five dimensions of access introduced by Penchansky and Thomas (1981), I provide direct quotes (translated into English) from participants where possible.

2.4.1. Availability

Participants were asked about the availability of maternal health services in their communities. They stated that they have CHWs in charge of maternal health services,

known as M-CHWs, who provided them with information and advice. A participant shared the following: "*Every time I had a problem I went to the M-CHW to get advice from her. She showed me how I should handle things and I can't even come here at the health centre without passing by her*." Participants highlighted that they may report their pregnancy to the M-CHW, or an M-CHW may come to visit them to ensure they receive antenatal care if pregnancy is suspected. Participants expressed that the M-CHWs in their communities familiarized them with the maternal health services available at the health centre and helped them to make appointments. According to one participant, an M-CHW is the first 'go-to' person for maternal health issues.

2.4.2. Accommodation

Participants shared their experiences regarding accommodation of their maternal health service needs by M-CHWs and health facilities. One participant explained how she organized her day when she needed to see an M-CHW: *"In the morning I give a bath to my child and we go to see the M-CHW because if you were late, chances were that you miss her, they are busy with their own activities."* A few participants reported that even though they live in the same communities as their M-CHWs, it is sometimes hard to get hold of them because they are usually involved in their own activities of daily life and do not have specific times when women can go to see them. This is particularly so in urban areas, where M-CHWs are more likely to be involved in paid labour outside the home. In these cases, women often had to call M-CHWs on their cell phones to ask questions or schedule an appointment, which could cause a burden for those with no cell phones or those who could not afford the cost of making the call. Participants indicated that M-CHWs' roles included linking them to health facilities and supporting them in receiving services that they may have been unfamiliar with.

In Rwanda, pregnant women are required to be accompanied by their spouses/partners for their first visit to antenatal services in order to be tested for human immunodeficiency virus (HIV) (Binagwaho et al., 2014). Participants reported that this was a good strategy as they could learn their HIV status and make sure the baby was safe, in case the mother was HIV+. However, they sometimes found it hard to get their

partners to accompany them, particularly if the couple did not live together for reasons such as work. When participants were asked how well the health centres met their needs, most stated that the number of available nurses was limited. Thus, they had to spend many hours waiting for care, which discouraged their partners from accompanying them because it meant the partners lost a full day of work. The support of M-CHWs in such cases was particularly welcome.

2.4.3. Accessibility

When asked about physical access to M-CHW services, participants shared that they could go to M-CHWs' homes when services were needed. Alternatively, the M-CHWs frequently visited their households to check on them when they were pregnant or to check on their infants. Participants highlighted that having M-CHWs located close to them allows them to get information about maternal health whenever they needed. One participant said that an M-CHW "*visited me when I was pregnant to remind me of the antenatal care appointments when she got reminders on her cell phone from the health centre."* As a result of having M-CHWs in their communities, women did not need to go to a health centre to address every single issue or concern, which was convenient given that most health centres were located some distance away. A participant confessed the following when asked how she got to the health centre: *"It used to take me about three hours because of physical weakness and it is mountainous… I may be exhausted sometimes for example on market day when I had to carry foodstuff to sell…but nothing could stop me from coming*." Most participants said that they relied on M-CHWs to accompany them to health facilities, especially when they felt weak physically or were ready to deliver their babies. Participants also explained that access to clinics could be challenging during rainy weather "*because the roads got slippery to walk*", but this was an issue that M-CHWs were unable to rectify. In terms of physical accessibility to health centres, the time it took participants to travel to the nearest health facility ranged from 30 minutes to three hours. When asked what mode of transportation they used, most reported that they walked. Another participant stated that some women were taken to health centres by traditional ambulance (a hand-woven stretcher) when they were unable to walk.

2.4.4. Affordability

Participants reported that the services provided by M-CHWs were free of cost in communities. In health centres, antenatal care services were covered by health insurance. Participants had to pay for delivery and for the cost of an ambulance if they used it to be transferred from health centre to a district hospital. However, participants shared different scenarios demonstrating that financial factors impacted the affordability of maternal health services. One participant said this: *"My husband decided when to go... He told me to wait for a week to get paid so that he could be able to buy us new clothes before we came."* Another shared that: "*Nurses criticized your hygiene in front of other mothers and they would laugh at you. It was embarrassing."* Participants highlighted the importance of having enough money to present themselves well at clinics.

2.4.5. Acceptability

Most participants acknowledged that having M-CHWs in their communities has given them a more positive attitude toward maternal health services and the acceptability of accessing formal care services: "*They are involved because they encourage you to do it as something important and they support you."* M-CHWs' crucial roles included providing maternal health information about nutrition and physical activity, helping mothers to prepare for their babies, and encouraging pregnant women to attend antenatal care and to deliver in a facility. One participant explained that she had been reluctant to seek out antenatal care, but she changed her mind after having five babies at home. Other participants stressed the role that neighbors played in ensuring that they used maternal health services, thereby heightening acceptance of such care.

2.5. Discussion

The interview findings shared in the previous section show some of the ways through which the different dimensions of access are experienced in the context of maternal health. These dimensions are impacted by the characteristics of women plus the dynamics of places where they live (Kearns & Collins, 2010), which, in turn, impact their

maternal outcomes. In other words, access to maternal care is shaped by different factors, including a combination of individual-level socio-economic and demographic factors of women's everyday lives and the larger socio-environmental factors that shape and create the places where they live. For example, a number of studies have reported on place-based disparities in access to maternal health care within countries in the SSA region (Babalola & Fatusi, 2009; McTavish, Moore, Harper, & Lynch, 2010). These disparities are mostly observed between rural and urban areas, due to the different socio-environmental factors that shape each of these settings, such as population density, the number of health facilities, and the allocation of resources (Schuurman, 2009).

Disparities in access to maternal health care have been reported among women living in the same geographic area (Fotso, Ezeh, & Oronje, 2008; Victora et al., 2011). The findings of the interviews shared in this chapter show that in such cases these disparities are heavily driven by individual-level socio-economic factors that shape access. For example, a male partner's ability to purchase new clothing for the mother and baby is a financial factor that shapes affordability. Similarly, the ability for this same partner to take time away from crops or paid labour to accompany a pregnant woman to an appointment at the health centre also shapes this particular dimension of access to maternal care. There is limited literature on male partner involvement in maternal health in SSA, and as a reported by Ditekemana et al. (2012), this involvement is impacted by different factors, including culture, the wait times, loss of income while in health centres, and poor treatment of male partners by health professionals (see also Påfs et al., 2015). The interview findings shared here point to the importance of further exploring male partner involvement in shaping and determining women's access to maternal care. Such research should also explore the nature of M-CHWs' roles in overcoming this potential access barrier through measures such as accompanying women to health appointments or, as documented here, providing letters of introduction for un-accompanied women.

The barrier to care that stems from perceived disrespectful treatment by health professionals has been reported in our study, as it has impact on the acceptability of maternal health services. Finlayson and Downe (2013) highlight that the utilization of antenatal care services is strongly associated with how women are treated by health

professionals and respectful maternal health care in general. It is thus not surprising that participants emphasized the importance of being able to see M-CHWs at the community-level who are familiar with the local culture, customs, and norms around professional interaction. Similarly, Rosen et al. (2015) emphasize that when women are treated poorly by health professionals, it decreases their trust in facility-based health services, which points even more to the importance of offering M-CHW care in the community. Consequently, this could translate into poor utilization of these services and overall poor acceptability of these services.

Although these interviews focused on M-CHW-based care in the community, larger community efforts to improve maternal health and ease access to care were revealed. For example, initiatives such as saving groups have been implemented in different communities to alleviate both affordability and physical accessibility barriers, as well as group purchases of stretchers. Reference to such initiatives clearly situated M-CHWs as members of local communities that also had resources that can contribute to facilitating access to maternal care. For the most part, participants praised M-CHWs for accommodating their needs, as they can reach out to them more easily without the need to go to the health centre for every inquiry.

However, it is important to note that as volunteers and with the many tasks that they need to accomplish, M-CHWs are not always able to accommodate the maternal health needs of women. In this context, Kalyango et al. (2012) call for more support and improved management of CHWs services by the health systems in SSA for improved health services. The findings of the interviews reported on in this chapter confirm the importance of this call for support and improved management. Further to this, Singh and Sachs (2013) note that due to lack of funding and poor integration of CHWs in the health system in most SSA countries, CHWs get to operate in only a few regions of a country and in most cases their services are not formalized. Rwanda's M-CHW model provides an example of how to expand access into rural and remote areas and thus warrants further exploration in the context of strengthening the provision of community-based care in the SSA context.

Chapter 3.

Promoting maternal health in Rwanda through community-based initiatives

The Rwandan community health program was established in 1995 to support rebuilding the health sector that was ravaged by the genocide (Binagwaho et al., 2014). The program started in only a few districts initially and was scaled up to the national level in less than a decade, thus making community health workers (CHWs) an integral part of the health system (Condo et al., 2014). The CHW program has contributed to the improvement of health outcomes through interventions such as community education and the provision of preventive, promotive, and curative health services in the communities (Bucagu, 2016). The CHW program is structured in a way that every village of about 300-400 people has four CHWs, including one who is in charge of maternal health (Bucagu et al., 2012). Maternal community health workers (M-CHW) follow up on the health of a mother from the day the pregnancy is pronounced, and they help women to get ready for birth and child rearing (Logie, Rowson, & Ndagije, 2008). They make women aware of what types of health services to use when, how to eat healthy, and how to take care of the baby, including having baby items and saving for health insurance and family planning (Tuyisenge et al., 2019).

For the M-CHW program to be successful, several community initiatives such as community saving groups and community cooking classes have been put in place to promote maternal health outcomes and to ensure community partnership for the sustainability of this program. Collaboration through community initiatives has helped to increase the trust that community members have in M-CHWs and the health system in general getting community members familiar with the kinds of health services available (Condo et al., 2014).

Also, the M-CHW program helped to reduce the use of traditional birth attendants, who delivered women despite not being certified skilled health professionals (Binagwaho et al., 2014). However, since traditional birth attendants had experience in

maternal health, they were included in the CHWs program and received limited training along with other women who were interested in taking on the M-CHW role(Condo et al., 2014). This strategy assisted in harmonizing the program and ensuring that women across communities received the same services and information about maternal health (Joharifard et al., 2012).

Community initiatives are implemented by CHWs, including M-CHWs, either as part of the government agenda to promote population and public health or as result of specific community needs and contexts. Some initiatives are primarily implemented to promote the health sector, whereas others are implemented to advance multiple sectors at a time such as education, gender, agriculture, and the environment, among others. By bringing communities together through such initiatives, community members can discuss local issues, and together they can look for solutions to such issues using locally available resources.

Umuganda and *Imihigo* are two examples of countrywide initiatives that bring communities together and through which maternal health is discussed to explore how health outcomes can be improved. *Umuganda*, which means 'coming together in common purpose to achieve an outcome' (Uwimbabazi, 2012), was established in efforts for unity and reconciliation and progress towards community development. Every village convenes at a given location on the last Saturday of every month to clean common areas (e.g., sidewalk sweeping, picking up litter, cleaning public/common buildings), followed by a meeting (Uwimbabazi, 2012). *Umuganda* happens across the country from 8 to 11am, and during this time, businesses, transportation, and functions such as weddings are not permitted. All individuals 18 years old and above are expected to attend *Umuganda*, provided they are healthy and physically fit to participate in the cleaning. In case they cannot do the cleaning, they are at least expected to attend the meetings. Local leaders lead *Umuganda* and they invite CHWs to provide updates on health. In the case of maternal health, M-CHWs are given time to educate village members about the current needs or status of maternal health in the village (Condo et al., 2014). They also share updates on national agendas on maternal health, for example, in case of a country-wide campaign on immunization.

Imihigo comes from the verb *guhiga*, which can loosely be translated as a 'vow to deliver.' *Imihigo* is employed as a performance contract, where leaders at all levels in Rwanda set targets in different areas for what needs to be achieved in their communities, depending on areas of priority (Kamuzinzi, 2016). In maternal health, M-CHWs may set targets about increasing antenatal care attendance in their village. Through such a target, they will then identify strategies to make sure that every pregnant woman is informed and encouraged to attend to such health services in a timely fashion (Bucagu, 2016). M-CHWs may also set goals on increasing the use of family planning methods; facility-based delivery; healthy nutrition; and/or making sure that every pregnant woman has health insurance, among others. The performance contracts are evaluated quarterly during community gatherings where M-CWHs update community members about how they are doing and what should be done to improve (Kamuzinzi, 2016). At the end of a fiscal year, there is an evaluation of different achievements for accountability, which offers a space to learn from others in order to adopt their best practices.

Several community-specific initiatives are implemented across different Rwandan villages following their needs and the resources available to implement them. For example, the *Dusasirane* initiative aims at helping women to buy household items, including baby items, bedding, and kitchenware. Through this initiative, women in the same village contribute voluntarily to a mutual fund weekly, and once they reach the needed amount, the members buy household items depending on each member's needs. Pregnant women are given priority. M-CHWs oversee such gatherings and provide information on what items are needed for the healthy living and wellbeing of mothers and their families in general. Group members decide on which items to buy in a priority order. Another similar initiative, called *akagoroba k' ababyeyi,* gathers women of a particular village every week to discuss issues aimed at gender equality and family promotion. During such gatherings, issues such as teen pregnancy and domestic violence are discussed, to denounce them and identify appropriate, place-specific, solutions (Tuyisenge et al., 2019).

Chapter 2 offered insights into different dimensions of access in the context of maternal health services (accessibility, availability, affordability, accommodation, and

acceptability). In this short bridging chapter, I have given an overview of some of the community-based initiatives implemented through government will and or community partnerships to contribute to the promotion of positive maternal health outcomes and overcome accessibility challenges. In chapter 4, I highlight different ways that M-CHWs facilitate equitable access to maternal care while operating in resource-limited settings. In doing so, I engage with in-depth interviews with M-CHWs who highlight some of the ways they collaborate with communities to provide maternal health services. Thus, the next chapter assists with attending to objective two of this dissertation: exploring the micro-scale factors that facilitate or detract from maternal community health workers' abilities to provide equitable maternal care at the community level. Thus, Chapter 4 explores the experiences of M-CHWs, facilitating equitable community-level access to maternal health services. I point out the contexts and strategies used by M-CHWs that construct either barriers or facilitators to maternal health services provision: community building; physical landscapes; the post-crisis socio-political environment in Rwanda; and the strategies used by CHWs to circumvent the constraints of a resource-poor setting in order to provide equitable maternal health services at the community level.

Chapter 4.

Facilitating equitable community-level access to maternal health services: Exploring the experiences of Rwanda's community health workers

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4.1. Abstract

Background: In Rwanda, community health workers (CHWs) are an integral part of the health system. For maternal health, CHWs are involved in linking members of the communities in which they live to the formal health care system to address preventative, routine, and acute maternal care needs. Drawing on the findings from in-depth interviews with maternal health CHWs and observational insights in five Rwandan districts, we identify specific strategies CHWs employ to provide equitable maternal care while operating in a low resource setting.

Methods: Using a case study methodology approach, we conducted interviews with 22 maternal health CHWs to understand the nature of their roles in facilitating equitable access to maternal care in Rwanda at the community level. Interviews were conducted in five Rwandan districts. Participants shared their experiences of and perceptions on promoting equitable access to maternal health service in their communities.

Results: Four key themes emerged during the analytic process that characterize the contexts and strategic ways in which maternal health CHWs facilitate equitable access to maternal care in an environment of resource scarcity. They are: 1) community building; 2) physical landscapes, which serve as barriers or facilitators both to women's care access

and CHWs' equitable service provision; 3) the post-crisis socio-political environment in Rwanda, which highlights resilience and the need to promote maternal health subsequent to the genocide of 1994; and, 4) the strategies used by CHWs to circumvent the constraints of a resource-poor setting and provide equitable maternal health services at the community level.

Conclusion: Rwanda's maternal CHWs are heavily responsible for promoting equitable access to maternal health services. Consequently, they may be required to draw on their own resources for their practice, which could jeopardize their own socio-economic welfare and capacity to meet the demands of their families. Considering the unpaid and untrained nature of this position, we highlight the factors that threaten the sustainability of CHWs' role to facilitate equitable access to maternal care. These threats introduce turbulence into what is a relatively successful community-level health care initiative.

Keywords: maternal community health workers, maternal health services, equity, middle and law income countries, Rwanda

4.2. Background

Maternal health remains one of the most pressing global health issues (Koplan et al., 2009), especially in low- and middle-income countries where 99% of maternal deaths occur globally (World Health Organization (WHO) & UNICEF, 2015). Most maternal deaths are preventable, provided that adequate and timely access to skilled care is available (Liang et al., 2011& Souza et al., 2014). Rwanda has made efforts to increase women's access to skilled birth attendants, and its maternal mortality ratio decreased dramatically from 1,020 in 2000 to 290 in 2015 WHO & UNICEF, 2015). Binagwaho et al. (2014) note that incorporating informal (i.e., not formally trained or paid) community health workers (CHWs) into the health system was one of the strategies that supported, and is continuing to support, this significant decrease.

In Rwanda, maternal health CHWs (M-CHWs), commonly referred to as Animatrice de Santé Maternelle, are volunteers involved in linking members of communities in which they live to the formal health care system to address preventative, routine, and acute maternal care needs (Condo et al., 2014). Similar to other low- and middle-income countries where CHWs are an integral component of health systems, Rwanda's M-CHWs are also typically the first point of contact with the health system for women seeking maternal health care (Gilmore & McAuliffe, 2013; Jackson & Hailemariam, 2016; Khatri, Mishra, & Khanal, 2017). As volunteers elected within their own communities to promote equitable access to maternal healthcare, M-CHWs play a vital role in ensuring that such services are reasonably accessible to the community members they serve (McCollum, Gomez, Theobald, & Taegtmeyer, 2016; Whitehead, 1991).

Globally, CHWs have been recognized as key players in health promotion programs, particularly in low- and middle-income countries (Tulenko et al., 2013). Their role supports the development of community-based primary health care as was laid out initially in the World Health Organization's (WHO) Declaration of Alma Ata (Rifkin, 2009). CHWs' roles and responsibilities vary by country and by community (Perry et al., 2014). CHWs have helped to increase equity in access to health care at the intra-national

level throughout the Global South, especially in locations that are remote or have health human resources shortages (Liu, Sullivan, Khan, Sachs, & Singh, 2011). The WHO recommends that CHW-based maternal health interventions should include: education and promotion of reproductive health; promotion of maternal health care-seeking behaviors; and passive support during the delivery and administration of misoprostol to prevent postpartum hemorrhage (WHO, 2012). These practices emphasize the importance of CHWs' familiarity with maternal health in the context of communities they serve, as well as the importance of promoting health-seeking behaviors and strategies for enhancing equitable access. In effect, these practices form the basis of M-CHWs' roles in Rwanda, as community-level providers of maternal care.

The involvement of CHWs in different countries' health systems was given great attention in the Millennium Development Goals era (Perry & Zulliger, 2012). During that period (1990 - 2015), an agenda was advanced to make progress on several health-related goals, including Millennium Development Goal 5 (to improve maternal health). A number of countries have greatly benefited from the services provided by CHWs and made progress in terms of enabling access to skilled birth attendance and overall maternal health outcomes, thus making progress to achieving goal 5 (Lassi, Kumar, & Bhutta, 2016; Rosato et al., 2008).

The Lady Health Workers Program in Pakistan (LHWP) is one of the most successful CHW programs in maternal health. It aims to provide maternal health services to poor and underserviced communities of the country and focuses on family planning, antenatal care and the use of skilled birth attendants (Hafeez, Mohamud, Shiekh, Shah, & Jooma, 2011). Studies have shown that maternal mortality rates decreased in areas covered by the LHWP (60% of the country) as compared to areas not covered (Hafeez et al., 2011). Even though this reduction in maternal mortality rates cannot be attributed to the LHWP program solely, it is important to acknowledge that the services they provide – including providing access to modern reversible contraceptives, attending deliveries, maternal health education, and tetanus toxoid coverage - are known to contribute to reducing maternal mortality (Jalal, 2011).

Rwanda is another country that saw improvement in maternal health during the Millennium Development Goals era, much of which was purportedly driven by the rise of the country's CHW program and the recruitment of M-CHWs throughout rural and urban areas (Condo et al., 2014). Rwanda's historical, geographical, socio-demographic and economic contexts make it a distinctive case study in terms of understanding M-CHWs' involvement in facilitating maternal health and enabling equitable access to the health system. Rwanda is a small, mountainous, landlocked country that has a population of about 12 million (NISR, 2015). The country's rebuilding process subsequent to the 1994 genocide called for community collaboration in different sectors, including health (Binagwaho et al., 2014). By 2013, more than a decade after this rebuilding effort had started, its doctor-patient ratio was only 1 per 16,046 people and its midwife-patient ratio was 1 per 18,790 people, while there was a ratio of 1 nurse per 1,227 people (Binagwaho et al., 2014). Continuing health worker shortages have only increased the need to implement a CHW model throughout the country, and to promote the development of M-CHWs as a way of improving equitable access to maternal care (Condo et al., 2014).

Rwanda's M-CHWs are in charge of maternal health promotion and provide monthly reports on selected health issues to community health centres. Each health centre oversees 120-200 CHWs, including 35-50 M-CHWs, operating in its catchment area (Condo et al., 2014). Health centres report their activities to district hospitals, which in return report to the Ministry of Health. At the community level, there is one M-CHW in each village of about 300-450 residents. Every M-CHW is elected by the members of the village during community gatherings (Tulenko et al., 2013). M-CHWs' specific roles involve educating women on the timely use of health facilities for maternal health services; providing women with pertinent information; recording women's appointments and providing appointment reminders; and accompanying women to health centres for delivery. Further, M-CHWs encourage men's involvement in maternal health as well as overall family support as a way of decreasing avoidable barriers to care (Bucagu, 2016; Tuyisenge et al., 2019). There are two major ways M-CHWs interact with women: during home visits and community gatherings. For home visits, M-CHWs either visit each household in their catchment area at least once a month or they receive women who need maternal health services in their own homes (Blanchard, Prost, & Houweling, 2019). At

community gatherings, M- CHWs provide village members with relevant maternal health information (Blanchard et al., 2019; Condo et al., 2014).

Since its implementation into the health sector in 2005, the CHW program has contributed to: the increase in antenatal care; the increase in facility-based deliveries from 45% to 69% between 2005 and 2010 (Bucagu et al., 2012); supporting the implementation of maternal death audits at the community level; the provision of family planning services at the community level, hence increasing the total rates of family planning usage (Condo et al., 2014). Despite these significant achievements, the CHW program is a voluntary one and there is no compensation provided for this elected role. Early on in developing the CWH program, the Ministry of Health had implemented a performance-based financing system for community health services (Condo et al., 2014). The payments were to be provided to CHWs depending on the financial resources of each health centre (Binagwaho et al., 2014). When the performance-based financing system was first introduced, the idea was to provide funds through cooperatives, whereby the CHWs of a health centre would form a cooperative and use the funds to implement income-generating projects (Condo et al, 2014). Most cooperatives were not successful due to the irregularity in receiving funds, insufficient financial literacy among cooperative members, and poor accountability in performance; thus this funding initiative was not sustained (Condo et al, 2014 & Binagwaho et al., 2014).

While acknowledging M-CHWs' remarkable contributions to the reduction of maternal mortality and the promotion of overall maternal health in Rwanda, there is a need for research that documents *how* they actually facilitate equitable access to maternal care (i.e., how they help with eliminating or mitigating unnecessary or unfair social, financial, spatial, and other barriers to accessing maternal care) (Condo et al., 2014; Dhillon, Bonds, Fraden, Ndahiro, & Ruxin, 2012; Yaya & Sanogo, 2019). Herein we explore this knowledge gap, considering how M-CHWs' facilitate such care while negotiating settings marked by resource scarcity. By 'resource scarcity' we acknowledge that Rwanda's M-CHWs receive little-to-no material support (e.g., cell phones, medical equipment, clothing) to facilitate care, that they receive no financial remuneration for taking on this role, that they do not have formal health worker training, and that they

voluntarily provide care within the context of an inequitable health and social care environment.

There is also a pressing need to identify ways that M-CHWs can continue to improve Rwanda's maternal health indicators, given that there is no sign this program will be changed or eliminated in the near future and that these indicators need to be strengthened. For example, the most recent demographic health survey (NISR, 2015) recorded a maternal mortality ratio of 290 per 100,000 live births, placing Rwanda among the countries with the highest maternal mortality globally. This ratio calls for both strengthening existing strategies and developing new programs in order to improve maternal health in the country and work towards achieving the Sustainable Development Goal of reducing the global maternal mortality ratio to less than 70 per 100,000 live births by 2030 (Story et al., 2017).

This analysis supports the goal of improving Rwanda's maternal health outcomes by considering maternal health promotion as an important determinant of health and exploring the needs of women and the resources available to them in order to ensure that they receive adequate care. Studies in other low and middle income countries show that community health workers provide maternal health services by either visiting households in their catchment areas or by having community members come to the homes of community health workers for health services (Bigirwa, 2009; Hafeez et al., 2011). In addition, mobile technology (Braun, Catalani, Wimbush, & Israelski, 2013; Little et al., 2013) and community gatherings (Kok et al., 2015; Okuga, Kemigisa, Namutamba, Namazzi, & Waiswa, 2015) are ways of providing maternal health education and the reporting of maternal health indicators. There is still a gap in understanding the effectiveness of such facilitating factors in environments of resource scarcity, considering that CHWs are unpaid and untrained. The findings of this qualitative analysis may have transferability to other contexts where CHW programs have been implemented and can thus assist with addressing these wide knowledge gaps.

4.3. Methods

The goal of this exploratory qualitative case study was to understand how M-CHWs facilitate equitable access to maternal care in Rwanda at the community level within a context of resource scarcity. The case study methodology lends itself to the study of complex aspects of social or human problems in various contexts (Baxter & Jack, 2008). This approach is appropriate when seeking to answer *how* and *why* questions (Denzin & Lincoln, 1994), which is consistent with our study. Case studies often use multiple methods in order to understand the full context of the issue under study. In the current study, this involved conducting semi-structured interviews with M-CHWs in their local villages; holding informal conversations with policy officials and health system administrators; and visiting villages to tour hospitals and community health centres with local hosts. In addition, we reviewed appropriate maternal care policy and practice guidelines.

4.3.1. Study setting

This study was conducted in three provinces of Rwanda: Northern Province; Southern Province; and Kigali Province. We purposefully selected these three provinces for inclusion to capture geographical and socio-demographic differences that characterize Rwanda's diversity. Data collection took place in particular districts within these provinces (see Table 1), with input and approval from national and district health officials: Gakenke and Rulindo districts (Northern Province); Nyarugenge and Gasabo (Kigali); and Ruhango (Southern Province).

Table 1. Districts where data were collected

District	Land size (Km_2)	Population size (National Institute of Statistics of Rwanda, 2014)	Population Density (National Institute of Statistics of Rwanda, 2014)	# of district hospitals	#of M-CHWs	# of health centres	# of visits per district
Nyarugenge	134	284,561	2,125	2	350	10	5
Gasabo	430.30	530,907	1,237	2	486	16	5
Gakenke	704.06	338,586	481	2	617	23	6
Rulindo	567	287,681	507	2	494	21	6
Ruhango	626.8	318,885	510	2	533	15	6

4.3.2. Participant recruitment

Recruitment was conducted by CHW coordinators working in local health centres in the districts of focus. These coordinators were first contacted by on-site representatives of a large, international research and intervention program designed to improve maternal health (to which this study contributes). The representatives informed the coordinators about the study as well as how to make arrangements for M-CHWs to participate. We explained that we wished to interview any M-CHWs who expressed an interest in participating in a face-to-face interview during our six-week on-site data collection period. Thus, data collection was driven by a temporal cut-off rather than reaching a target number of participants. CHW coordinators distributed written and verbal information about the study to M-CHWs, and those who were interested in participating in the study informed the coordinator. To build trust with potential participants, the interviewer – who is the lead author - arranged to meet with interested M-CHWs to explain the study further, answer any questions, and schedule interviews at a convenient time. In order to maintain confidentiality, the CHW coordinators and health centres were never informed who ultimately agreed to participate.

4.3.3. Data collection

In-depth interviews were conducted by the first author, who is a Rwandan national, between June and August 2017 with M-CHWs in the five districts of focus. Participants chose the interview location and, to minimize the burden on their time, most M-CHWs chose to be interviewed at the nearest health centre on a day when they had already planned to accompany a pregnant woman. Some interviews took place at a participant's house. Interviews were conducted in the Kinyarwanda language (the official national language taught in all schools) and began with a review of the study's goals and a discussion of participants' rights in the study. The interviewer then obtained participants' verbal consent for participation. Basic demographic information was collected at the start of the interview (e.g., age, marital status, number of children, education attainment, profession, and years of experience as a M-CHW) to better understand the context of the interview. Next, open-ended questions were asked to elicit experiential insights from M-CHWs, including their understanding of maternal health and the factors that contributed to the use of, access to, and delivery of maternal care services.

Interviews were first conducted in Gasabo district, Kigali, to pilot the recruitment process as well as the guide. Following completion of these initial interviews, and with the input of other research team members, the semi-structured guide was revised in order to refine the questions asked. We added additional questions that explored how and why women became M-CHWs as this issue was emerging as both complex and significant. Interviews lasted between 45 and 70 minutes and were audio-recorded. Detailed field notes were kept throughout the data collection period, with entries made following each interview regarding body language and conversational tone, among other factors, and following site visits to health care centres.

A total of 22 interviews were conducted with M-CHWs, all were women between the ages of 33 and 52. Most participants reported farming as their main income-generating activity. The remaining few reported being tradespeople, artisans, or involved in some other form of waged employment. They each had between two and eight children. Their education ranged from the completion of primary school to a few years of

secondary school. None were formally trained health workers or held health worker certifications. The time they had been volunteering as M-CHWs ranged from as little as three months to eight years at the time of the interview, with the average being just under three years.

4.3.4. Data analysis

Data were analyzed using thematic analysis, a technique that involves identifying patterns in datasets that characterize aspects of the phenomenon being explored, and then comparing those patterns to the findings of existing studies in order to understand how they relate to existing knowledge (Bradley, Curry, & Devers, 2007). The interviewer simultaneously transcribed and translated the audio recordings into English after completion. The transcripts were stored and organized with NVIVO™ software, which is a qualitative data analysis program. The process also included uploading field notes into the same data management platform. Following data preparation, team members independently reviewed selected transcripts to identify emerging issues in the dataset to be explored through analysis, as well as to determine dominant themes around which to organize key findings. Next, team members met face-to-face to identify commonalities emerging from these independent reviews to confirm the scope and scale of dominant themes, which is an important part of thematic analysis (Braun and Clarke, 2014).

The insights generated through independent review were shared in a team meeting and used to develop a coding scheme that incorporated inductive and deductive codes for thematic analysis. Then team members reviewed coded data extracts to determine sub-themes and the relationships between different themes for data interpretation. It was through this process that a focus on community context and the strategic ways in which M-CHWs facilitate equitable care access in an environment marked by scarcity emerged, which we explore herein.

4.3.5. Ethical considerations

Ethical approval to conduct this study was obtained from the Research Ethics Boards of Simon Fraser University and the Ministry of Education of Rwanda. M-CHWs

were assured that their participation was voluntary and confidential, and that they were free to withdraw from the study at any time. In order to acknowledge their contribution to the research, act consistent with cultural protocols and in light of participants' socio-economic positions, a food item was given to each participant to acknowledge the value of their time and importance of their contribution to knowledge (e.g., a bag of rice or sugar).

4.4. Findings

In this section, we explore four key themes that emerged during the analytic process. These themes characterize the contexts and strategic ways in which Rwandan M-CHWs facilitate equitable access to maternal care in an environment of scarcity and in the context of barriers identified by the participants to affect women's access to care. These themes are: 1) community building, or specifically the role of community participation in promoting maternal health and facilitating M-CHWs' roles; 2) physical landscapes, which serve as barriers or facilitators both to women's access to care and M-CHWs' equitable service provision; 3) the post-crisis socio-political environment in Rwanda, which highlights resilience and the need to promote maternal health subsequent to the genocide of 1994; and, 4) the strategies employed by M-CHWs to circumvent the constraints of a resource-poor setting and provide equitable maternal health services at the community level. These themes are underpinned by existing literature on M-CHWs' roles and experiences of service provision in low and middle-income countries (AbouZahr, 2014 & Mwendwa, 2018), which we explore in the discussion. Throughout the remainder of this section we include direct quotes to highlight participants' voices regarding the issues being explored.

4.4.1. Community building

Participants strongly believed that advancing equitable access to maternal health in Rwanda required the involvement of the entire local community. This was best achieved when initiatives were implemented to promote maternal health while strengthening community relationships. For example, one M-CHW described her

involvement in a healthy cooking program that illustrated such a holistic initiative: *"In our village, we do monthly cooking demonstrations. Every woman contributes 100 francs [USD$0.03] at each gathering and brings other food items…we teach them how to make healthy meals… This has helped to enhance our role in the community."* Participants believed that in their capacities as M-CHWs, they were responsible for building community networks and collective initiatives that contributed to achieving maternal health promotion objectives. For example, it was regularly explained that one of the greatest challenges pregnant Rwandan women faced was the cost of purchasing health care. Women were encouraged to have health insurance, and for most families who could afford to pay for premiums up-front, being part of community associations helped them to save and pay for health insurance in a timely fashion. One participant stated that women in her village had an association that *"gathers once a week…each woman gives weekly contributions and we use those savings to pay for health insurance…this is helpful especially for bigger families who cannot afford to pay the premiums all at once."* By supporting such initiatives, M-CHWs were supporting equitable access by ensuring that all women were able to gain access to formal maternal care services at health centres and hospitals.

In order to strengthen community health programs, local village leaders provided support to M-CHWs that enabled maternal health efforts to be integrated into other community promotion programs. Local leaders, from village chiefs to community security officers at the village level, were familiar with the day-to-day lives of their community members and collaborated with M-CHWs on some maternal health-related issues to make sure all women in the village received the care they need. This was emphasized by one participant: *"We work with local authorities... When they notice problems in a family they inform us."* Participants highlighted how local leaders updated them about demographic changes in their communities: *"Sometime new people move in…the village chief helps me to get information about these families; he calls me and presents me their situations and I arrange to go visit them."* Moreover, all participants discussed calling for local authorities' help in cases where they needed trusted support. For example, "*When a woman refuses to attend antenatal care, I report it to the village chief... I tell him/her because she [the woman] may die if she doesn't consult the health*

centre or by trying to abort... together we go talk to her." Most participants stressed how collaboration with community leaders established a strong foundation for equitable primary health care at the community level. Collaboration was central to identifying people in need of care, enabling M-CHWs to fulfil their own voluntary role and carry out their responsibilities to promote maternal health.

4.4.2. Physical landscapes

Rwanda's mountainous landscape played an important role in shaping women's clinical utilization and also M-CHWs' service delivery. One of the M-CHWs' roles was to encourage women to use health services for prenatal, delivery, and post-natal care. However, most participants acknowledged Rwanda's challenging, highly mountainous landscape as impacting women's attendance at health services, indicating that spatial access sometimes limited the use of such services. A participant stressed it can take: "*between 40 and 45 minutes for a strong person to get to the health centre. For physically weak people, it takes them about an hour because they have to walk up to the top of the hill.*" As mentioned by most participants, there were some remote communities where health centres were located a considerable distance away from women's homes, making it difficult for both women to visit them and difficult for M-CHWs to visit pregnant women.

Participants had developed a number of non-resource-intensive strategies to facilitate equitable maternal care access to assist women with overcoming spatial access challenges. For example, most participants accompanied women on walks to clinic appointments to support them on the journey and assist with navigating difficult pathways. Wherever possible, individual or taxi bicycles helped women get to health centres – sometimes paid for out-of-pocket by M-CHWs. However, participants also indicated that bicycles were unable to navigate particularly challenging terrain: "*the road is very ascending and even a bicycle cannot take a patient up there due to the long distance*." In addition, many participants talked about how weather compounded the maternal care access challenges brought about by Rwanda's physical landscape. For example, participants mentioned that some roads can become slippery or damaged during

rainy periods, making it harder for women to get to health facilities. Thus, some participants talked about being attentive to weather reports in order to plan the best times or routes to visit women or assist them with getting to health centres.

In some cases, participants drew on their personal resources to overcome the spatial barriers to accessing maternal health care that may have negatively impacted their abilities to support care provision at the community level. Journeys to get women to health centres could be long and are sometimes undertaken in the dark. A few participants talked about arranging for their own family members to accompany them when walking long distances, especially in the dark. Some participants also reported bringing personal flashlights to enhance safety and assist with navigating challenging pathways. In some cases, M-CHWs drew on their personal finances in order to facilitate access across challenging terrain in difficult weather conditions: "*When the weather is bad I may hire a motorcycle to take a woman to the health centre, knowing that she doesn't have money to pay for transportation and I pay…she may or may not reimburse me."* As noted in this quote, there was typically no expectation of reimbursement and many participants understood that their commitment to improving maternal health would require them to draw on their own personal resources from time-to-time.

4.4.3. Post-crisis social-political environment

Bringing communities together to ensure the sustainability of the health system was among the development programs that became imperative to rebuilding Rwanda after the genocide of 1994 (Binagwaho et al., 2014). Participants acknowledged their roles and responsibilities in bringing communities together to promote maternal health and facilitate equitable access to care in their villages. Several participants stressed that promoting community unity was one of the assignments they received as M-CHWs: "*We receive training on maternal health…during each training they emphasize on our role as the eyes of our communities… Our role is to make sure that everyone feels included in each program that we implement.*" Serving as the 'eyes of the community' helped M-CHWs facilitate equitable access to maternal care at the community-level because doing

so allowed participants to identify emerging local problems and priorities and assess their impact on the uptake of maternal care.

Most participants highlighted that the community gatherings championed in Rwanda's era of unity and reconciliation functioned as ongoing channels through which they could provide maternal health messages. For example, one participant said that: "*After our monthly [community] cleaning session, there is a time dedicated to health education…we mention about maternal health because we know such a message will get to many people."* Participants explained that bringing the community together for formal and informal discussion helped them to identify solutions for emerging issues, with maternal health being among the top priorities. M-CHWs also held themselves accountable for the responsibility bestowed upon them by their communities: "*It is my responsibility to make sure that women have better health…if the community has elected me, I cannot give up even though it is a demanding job… it is my role to promote other women and my country.*" This sense of responsibility drove many participants to facilitate improved maternal care access for their fellow community members.

4.4.4. Circumventing constraints

Participants identified many strategies to deliver maternal care despite the resource scarcity that frequently characterizes the contexts in which they were situated. This context led many M-CHWs to find ways to circumvent barriers to care delivery in order to facilitate equitable access to maternal care at the community level. For example, participants acknowledged that taking on the M-CHW role would likely involve some degree of loss of personal income, in addition to drawing on their own personal resources to facilitate care provision. As one participant explained: "*I always lose money when I am performing my duties as a M-CHW…for example, even the time I have spent with you, I could have made lots of progress tailoring clothes…but I do not think like that…otherwise I would quit.*" For her, the benefit of M-CHWs' informal labour to the community was far more important than her personal income. This type of reasoning was made even more evident in cases where M-CHWs used their own financial resources to facilitate care provision to circumvent the lack of resources they were provided with. As

noted previously, most participants revealed that they had encountered situations where they had to spend their own money to purchase things such as transportation, phone credits, and baby items or food for women they were serving who had even fewer financial means.

Most participants acknowledged that support from their own families was critical to the role they played in facilitating equitable maternal health service delivery in their communities. This was especially so given the unpredictable nature of their work and the scarcity of resources that characterized the context. "*You cannot perform well as an M-CHW without the support of your family members…you have to inform your husband of your moves and if he did not support you, he would not allow you to go.*" In a similar context, another participant said: "*Even your children have to agree because they help you with house tasks. My daughter used to help me during some CHW duties before she got married.*" All participants explained that they had to rely on their own families for support in order to provide maternal care to other women in the community. Some got family members to help at home with household and farming chores while they were away providing care, whereas others had spouses and other family members accompany them in M-CHW-related activities.

4.5. Discussion

The findings of this study reveal many of the complex ways in which Rwandan MH-CWHs facilitate equitable access to maternal health services at the community level. Broadly speaking, they accomplish this by assisting women and other community members with mitigating or eliminating avoidable barriers to access maternal health services. M-CHWs' roles include overseeing different community initiatives that help to strengthen community relationships (Adams et al., 2015; Scott et al., 2018b). The findings show that engaging in these wider activities builds trust with community members and helps M-CHWs facilitate equitable access to care that local women need. M-CHWs also promote community-building by working with other local actors, including other elected leaders, to encourage uptake of maternal care services and to identify women at risk of never accessing care. Other research has established that these

roles are fundamental to promoting maternal health at the community level in a young, low-income country with high fertility rates, such as Rwanda (Adams et al., 2015; Luckow et al., 2017). Uniquely, the current analysis shows that M-CHWs sometimes draw on their own personal resources in order to circumvent the barriers to care created by factors such as weather, getting to distant clinics, and caring for women with very limited financial resources. For example, they not only subsidize access to care through the use of their own wealth (e.g., time, money, cell phones, flashlights) but also draw on personal or family support networks to fulfill the demands of their voluntary labour. A strong desire to contribute to Rwanda's rebuilding process during its post-crisis social-political environment and to support their local communities drive many women to take on the M-CHW role in the first place; thus the personal commitment to fulfilling this role as demonstrated by drawing on one's personal resources and networks may not be surprising.

Research elsewhere, including South Africa and India, has shown that CHWs' consistent contact with communities is undertaken within a larger context of community members holding them responsible for improving access to maternal health services (Mwendwa, 2018). Such expectations regarding the responsibilities associated with this role may compel CHWs to use their own readily-available personal resources to promote access to maternal services (Okuga et al., 2015).The risk is that extending one's personal resources and networks to facilitate such informal care provision may lead to burnout by CHWs or personal harms, such as debt. Though not examined in the current study, these are recognized outcomes of the physical, emotional, mental, and financial toll of providing unpaid care labour (Hampshire et al., 2016; Oliver, Geniets, Winters, Rega, & Mbae, 2015). Thus the findings of the current analysis suggest that this may be an area worthy of policy exploration in Rwanda in order to avoid onset of caregiver burnout. In addition, the unpredictability of CHWs' jobs and a lack of fixed work schedules requires these informal caregivers to be available at any time of the day, which can jeopardize their paid job or family responsibilities (Willis-Shattuck et al., 2008). The findings of the current analysis documented many specific examples. Identifying mechanisms to minimize the loss of personal income by Rwandan M-CHWs is another area worthy of policy exploration or intervention.

Integrating the M-CHW program into Rwanda's health system was part of the country's decentralization program, which aimed to increase the community's participation in, ownership of, and accountability towards socio-economic development (Brinkerhoff, Fort, & Stratton, 2009). Rwandan M-CHWs link communities and their members to the formal health system. This effectively positions them at the frontline of promoting the benefits of maternal care and facilitating access to, and ultimately uptake of, such services (Gilmore & McAuliffe, 2013; Lewin et al., 2010). Through community initiatives such as village meetings and cooking classes, the findings of this analysis show that M-CHWs lead community gatherings as a means to promote healthy maternity practices in their communities. Such strategies have been proven to work in other contexts, such as Bangladesh (Adams et al., 2015) and Liberia (Luckow et al., 2017). These initiatives can help community members share experiences, learn about health resources available for community ownership to support the sustainability of the CHW program, and ultimately contribute to reducing maternal mortality. The findings of the current analysis show that by providing maternal health services in local communities, M-CHWs also aim to promote equitable access to maternal health services through participating in, and leading, such community initiatives. In addition to the previous examples of using their own resources to subsidize poorer women's care access, they also worked with other community leaders to identify marginalized women at risk of not using services, sometimes reaching out to them through community initiatives. In both of these examples, M-CHWs have developed tailored strategies to improve equity of access to maternal care in their communities.

This analysis has raised important issues that can and should be explored through future research. Considering the deep individual responsibility that is built into Rwanda's M-CHWs program and the lack of structural or system-based resources available to those who provide such care, innovative low-cost initiatives that can support M-CHWs' service provision should be explored. Such research needs to be conducted from multiple perspectives in order to fully assess the potential costs and benefits of such initiatives. It is also essential to identify how sustainable financial, policy, and administrative support can be made available for such initiatives. In addition, to ensure that M-CHWs' roles are

sustainable, actors within the health system should learn about what has and has not worked for various community health programs both locally and internationally.

First, however, a stakeholder analysis would need to be undertaken to identify all those directly and indirectly involved in or impacted by the M-CHW program in order to understand the scope of who would benefit the most from such learning. Thereafter, stakeholder's voices should be sought out in research in order to inform striking the right balance between M-CHWs' community involvement and personal responsibilities. Such insight will assist with determining whether or not interventions can be implemented to support and maintain balance for Rwandan M-CHWs and the informal care roles they balance against other life responsibilities. For example, these interventions could focus on identifying ways to enhance the training opportunities provided to M-CHWs or to reward them through enabling skill-building that is transferrable to paid employment contexts. Alternatively, M-CHWs and their nuclear family members could be exempted from the modest annual fee that enables their own access to Rwanda's formal care system, in recognition of their informal care work.

While the current analysis has explored the facilitation of equitable maternal care at the community level in Rwanda from M-CHWs' own perspectives, future research should explore how CHW coordinators and others who provide formal maternal care services in Rwanda's health care system view the effectiveness of M-CHWs' roles and responsibilities. Such insight will assist with identifying avenues for improvement, both for the work done by M-CHWs and for expanding equitable access, and also interventions to support M-CHWs in their unpaid care work. We also propose that future research examine the impact of M-CHWs from the perspective of other community members in order to examine how these individuals understand M-CHWs' involvement in maternal health services. To this end, we suggest that research be conducted with M-CHWs families', people who seek M-CHWs' services, and other community members – all of whom are members of M-CHWs' informal support networks. The findings of such research would reveal implications that the M-CHW program has for different members of the community and potentially lead to identifying ways to strengthen the program and support the continued provision of informal care work.

4.6. Conclusion

Rwanda's M-CHW program successfully promotes maternal health at the community level. However, as CHWs are untrained and unpaid, their roles are fragile and difficult to sustain. In low- and middle-income countries where health systems lack adequate resources, including human and financial resources, CHWs are heavily responsible for promoting equitable access to maternal health services and ensuring uptake of formal care (Oliver et al., 2015). As a result, this analysis has shown that Rwanda's M-CHWs may feel compelled to expend their own resources to facilitate care delivery, which could jeopardize their own socio-economic welfare and capacity to meet the demands of their families. To promote M-CHWs' roles and ensure that they are sustainable, policy revisions should enhance equity in M-CHWs' own responsibilities and support the roles they take on in and through community building. Stakeholders in maternal health, both within and beyond Rwanda, should consider the M-CHW program as an example of a promising human resource that improves equitable access to maternal health and therefore needs to be strengthened. This will help facilitate progress in improving maternal health in low- and middle-income countries, where most of global maternal deaths are reported.

Chapter 5.

Maternal community health workers training and capacity building: Examples of interventions

Rwanda's Ministry of Health (MoH) offers limited basic training to M-CHWs before they start performing informal care work, and the training focuses on M-CHWs' primary interventions (Bucagu, 2016). The training package includes the following modules: 1) enumeration and registration of women of reproductive age; 2) enumeration and registration of pregnant women and entering them in the rapidSMS system for follow-up; 3) how to conduct home visits to pregnant women and to encourage them to attend to antenatal care; 4) encouraging and preparing pregnant women for facility-based delivery; 5) post-partum visits to the mother and newborn; 6) administration of misoprostol to women who delivered at home; 7) administration and/or discussions of family planning methods; 8) reporting and bookkeeping; and, 9) attending monthly meetings at the health centre (Logie et al., 2008). Such training is provided to new M-CHWs before they start the role. Refresher training is provided depending on available resources, especially in case of turnover, to ensure that M-CHWs operating in the same health division have an opportunity for learning exchange (Condo et al., 2014).

Continuous training and mentorship of M-CHWs has been identified as an effective way to promote the health of mothers and newborns (Horwood et al., 2017; Tuyisenge et al., 2018). Interventions aimed at M-CHWs' capacity-building are crucial to encouraging timely utilization of maternal health services at the community level and in health centres (Musabyimana et al., 2019). The more knowledgeable, skilled, and experienced M-CHWs are, the more community members trust them to use and benefit from their services (Mwendwa, 2018). Further to this, women who use M-CHWs' services can save time and financial resources by benefitting from community-based services instead of going to health centres, which serves as an important incentive to accessing this care. Moreover, M-CHWs' training contributes to the reduction of overcrowding in health centres through the provision of early care at the community

level, thereby leading to better resource allocation. Hence, the MoH encourages its partners to collaborate in promoting and providing in-service training. It takes collaboration between the MoH and other stakeholders in maternal health to provide in-service training to M-CHWs, depending on community needs and available resources. For the most part, the MoH collaborates with partner organizations to train M-CHWs on a given subject, and such training takes place in the operating areas of the partner organization.

The Training, Support, & Access Model (TSAM) for Maternal, Newborn and Child Health project, with funding from Global Affairs Canada (2016-2020), had a mission to improve maternal, newborn and child health in Rwanda and Burundi by working with local partners to improve health service access and delivery. TSAM is an example of a collaborative partnership supporting maternal health that involved the MoH, community health centres, CHW program representatives, and Canadian academics and clinicians. In Rwanda, TSAM goals included working with health practitioners and health workers to practice safe, evidence-based, gender-sensitive, culturally appropriate and inter-professional emergency maternal, newborn and child health care. At the community level, TSAM activities were implemented in its operating areas (Southern and Northern provinces). These activities involved training M-CHWs between 2017 and 2019 on the Community Based Maternal and Neonatal Health Program. The training was developed based on the main tasks of M-CHWs: identifying and registering women of reproductive age as well as identifying pregnant women in the community and encouraging them to utilize antenatal, delivery and post-natal care services. My dissertation research, though outside the scope of the intervention program, was funded by TSAM.

The TSAM training model, built on the existing MoH model, was designed to strengthen training on components such as gender, ethics, interprofessional collaboration, and maternal mental health. As part of the training program, TSAM introduced a peer mentorship program that aimed to increase collaboration among M-CHWs while learning best practices from each other. The training integrated community leaders, who worked closely with M-CHWs to promote interprofessional collaboration and equip them with more knowledge and skills for problem-solving for the most common issues found in

their communities (e.g., supporting women who refuse to attend to antenatal care). Involving local leaders was a central component since they are not included in the initial training of M-CHWs, yet they are the ones who work with M-CHWs on a day-to-day basis, providing information about what is going in the maternal health care in their villages. By equipping local leaders with more information, they can confidently contribute to informing community members about M-CHWs services and timely use of maternal health services.

To ensure continuity and sustainability of the integrated training model, TSAM recommended that the MoH establish a regular training system and implement a peer-to-peer mentorship approach. This model promotes teamwork and collaboration among those involved in maternal health care at the community level including M-CHWs, other CHWs, local leaders and health care providers at the health centres (Bucagu, 2016). TSAM also recommended having regular meetings involving these levels as a regular platform for discussing maternal health progress and challenges in communities and to look for collaborative solutions. Such a platform would be a space to talk about issues such as workloads for M-CHWs, what constitutes adequate collaboration with local leaders, and involving community members, among others. It would also be a space to brainstorm on how locally available resources could benefit the promotion of maternal health outcomes in the community. It is unknown at this point if and how the MoH will act on these recommendations.

In Chapter 4 I explored the experiences of M-CHWs, specifically considering what constitutes barriers or facilitators to equitable community-level access to maternal health services. In that chapter, I highlighted the strategies employed by M-CHWs to provide maternal health services in their communities: community building, physical landscapes, the post-crisis socio-political environment in Rwanda; and, the strategies used by CHWs to circumvent the constraints of a resource-poor setting. In the current Chapter, I have given an overview of the training offered to M-CHWs in preparation for this informal care role and identified some of the benefits of ongoing training for capacity building. I provided the example of TSAM as an example of a capacity building program-based partnership. An outcome of TSAM was a strong identification of the need

for the *continuous* training of M-CHWs to contribute to program sustainability and strengthen collaboration with community leaders. In Chapter 6, I use the ethics of care framework to explore M-CHWs' understandings of what motivates them to be part of this program and fulfill the responsibilities associated with providing maternal health services in a resource-limited context. The chapter stresses the responsibility, vulnerability, and mutuality aspects of M-CHWs roles in the maternal care system and their villages, and hints at how such aspects may negatively affect the sustainability of the program. A significant point of discussion in that chapter hinges on the potential for deeper training, such as that suggested as an outcome of TSAM, to explicitly address and prepare women for some of the ways in which the program may introduce vulnerabilities that they can and should address. Such vulnerabilities are heightened because care responsibilities are undertaken in the mutual context of the villages where M-CHWs and care recipients are co-located.

Chapter 6.

Using an ethics of care lens to understand the place of community health workers in Rwanda’s maternal care system

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6.1. Abstract

This study explores informal care roles involved in the delivery of maternal health services by Rwanda’s elected maternal community health workers. We conducted semi-structured interviews with 20 such workers in five Rwandan districts to explore their understandings of why they were elected for this voluntary position; what motivates them to fulfill their responsibilities; and their experiences of providing maternal health services in a resource-limited context. Thematically exploring the findings using an ethics of care lens, we highlight how responsibility, vulnerability, and mutuality inform these workers’ roles in the maternal care system and in their villages. We conclude by acknowledging the significant responsibilities assigned by these works and that the burden in fulfilling them may negatively affect the sustainability of this initiative.

Keywords: community health workers, informal care, Rwanda, maternal care, vulnerability, responsibility, mutuality, ethics of care

6.2. Introduction

Community health workers (CHWs) are volunteers who are typically elected by their communities to link local residents to the formal health care system. They are especially common in resource-limited countries or regions (Liu et al., 2011; Olaniran, Smith, Unkels, Bar-Zeev, & van den Broek, 2017; Perry et al., 2014; Scott et al., 2018). The programs that organize CHWs emerged in the late 1970s after the World Health Organization's Declaration of Alma Ata, which emphasized the role of involving communities in primary health care delivery in countries with resource shortages (Liu et al., 2011; Mundeva, Snyder, Ngilangwa, & Kaida, 2018; Sprague, 2012). Despite this global call, only a few CHW programs have been integrated into the health systems of their host countries (Liu et al., 2011; Terpstra, Coleman, Simon, & Nebeker, 2011). In Rwanda, the CHW program is fully integrated in the health system and it is included in key facets of health care administration and reporting (Binagwaho et al., 2014; Hategeka et al., 2019; Musabyimana et al., 2018). Thus, throughout the country there are community-elected informal (i.e., unpaid, untrained, unlicensed) CHWs who provide care alongside health professionals.

Rwanda's CHWs are elected throughout the nation by their own villages (the lowest administrative entity in Rwanda) to provide basic primary health care services to community members (Brinkerhoff, Fort, & Stratton, 2009; Haver et al., 2015; Bucagu, 2016). Their services range from supporting maternal and child health to nutrition and sanitation monitoring. Each village (about 300-450 residents) elects four CHWs who collaborate to carry out community health outreach programs (Binagwaho et al., 2014). As maternal health is one of the Rwandan health system priorities, a specific community health worker with a maternal care focus (the M-CHW) is assigned to provide maternal health services to women before childbirth and until the newborn is one year old (Binagwaho et al., 2014; Bucagu, 2016; Tuyisenge et al., 2019). Unlike the other CHW positions, only women can be elected as M-CHWs so as to be consistent with culturally-specific gendered protocols regarding maternal care (Tuyisenge et al., 2019).

According to World Health Organization (WHO) (2012) guidelines, the primary health care responsibilities assigned to Rwanda's M-CHWs include: education and the promotion of reproductive health; the promotion of maternal health care-seeking behaviors; and passive support during the delivery and administration of misoprostol to prevent postpartum hemorrhage. It has been documented that many M-CHWs are asked or expected to perform responsibilities beyond those identified by the WHO, some of which can go beyond their emotional, social, and financial capacities (Mundeva et al., 2018; Scott et al., 2018; Tuyisenge et al., 2019). For example, recent research has documented Rwandan M-CHWs undertaking activities such as personally paying for women's taxi rides to get to formal care providers, putting aside their paid work duties to provide informal care, and drawing on their own friends and family to assist them in undertaking their informal care work (Tuyisenge, et al., 2019). When such requests or expectations are coupled with the lack of remuneration for the care they provide, and the (sometimes) heavy workload they face, the sustainability of Rwanda's M-CHW initiative becomes threatened.

Crooks and Andrews (Andrews & Crooks, 2010; Crooks & Andrews, 2009) have argued that primary health care is a fundamentally geographic practice as its focus is on first-contact care given by providers who share, or are familiar with, local needs and context. This is enacted in the context of Rwanda's M-CHW program by having volunteers, who are drawn from the communities in which care recipients live, monitor the health of pregnant women and newborns and connect them to the formal health care system. Central to Rwanda's M-CHW program is that the informal caregivers, specifically M-CHWs, and the women and children they care for live in the same village and are thus highly geographically proximal. Further to this, a goal of the M-CHW program is to lessen some of the spatial inequities in access to maternal care across rural and remote Rwandan communities by building networks that facilitate connections between communities and district health centres (Binagwaho et al., 2014; Bucagu, 2016). This is another demonstration of the implicitly geographic nature of how primary health care is being rolled out in the Rwandan context.

The local context in Rwanda is important as it is a resource-limited country that is still undergoing reconstruction subsequent to the 1994 genocide against the Tutsi. The country is also characterized by high fertility rates, high maternal and infant mortality rates, and a shortage of health providers (Cancedda et al., 2018). Such place-based contextual variables have formed a need for the population to come together and utilize available resources to promote maternal health, which is being responded to at the village level through the M-CHW program. However, the significant proximity adds an important relational dynamic to the practice of this community-based care. Bondi (2009), for example, has observed that the practices of anonymity and confidentiality become threatened when caregivers and care recipients live geographically proximally and share social networks. This reality in the M-CHW context raises implications for the ethics of care in the practice of maternal care delivery at the local level in Rwanda.

An ethics of care suggests that the relationship between caregivers and care recipients is morally significant and theorizes why one gives care and one accepts the care that is given (Edwards, 2009; Lachman, 2012; Noddings, 2012). It is built on an acknowledgement of the interdependence between caregivers and care recipients (Noddings, 2012; Whitmore, Crooks, & Snyder, 2015). How their relationships play out and the sense of obligation people may feel towards providing care for another person varies greatly based on factors such as role expectations and context (Gastmans, 2002), as well as the urgency with which care is needed (Tronto, 1993). Using an ethics of care framework, we want to understand the implications of proximity between caregivers and care receivers in the context of Rwanda's maternal health care at the community level. Why do women opt to take on the significant role of M-CHWs for the villages in which they live? In this article we explore this question through presenting the findings of interviews with M-CHWs from five Rwandan districts. Drawing on three concepts central to the ethics of care used to anchor the analytic framework – responsibility, vulnerability, and mutuality – we explore why and how M-CHWs provide the care they do to support Rwanda's efforts to strengthen maternal health outcomes at the community level.

6.3. Methods

We employed a qualitative case study approach to explore informal caregiving roles involved in maternal health service delivery by M-CHWs. Case study methodology was selected as it is focused on exploring questions of *how* and *why* and analyses are driven by understanding context (Baxter & Jack, 2008). This enabled us an opportunity to closely examine why women decided to become M-CHWs for their villages and how they undertook this informal caregiving role.

6.3.1. Data collection

We sought to complete up to 20 semi-structured interviews with M-CHWs between June and August 2017 in specific areas of the country. Prior to data collection, ethical approvals for the study were granted from our institutional ethics board and from a national Rwandan board. Data were collected via in-depth interviews with M-CHWs in five Rwandan districts: Gasabo, Nyarugenge (Kigali-City Province), Rulindo and Nemba (Northern Province), and Ruhango (Southern Province). These districts were purposefully selected as they vary in terms of their urban or rural nature, distance from tertiary care, distance from health centres, presence of road infrastructure, and topography (Rwanda is a mountainous country and some villages are located at a high elevation). These factors, in part, shape some of the inequities in health service access reported across the country (Huerta, Munoz, & Källestål, 2012; Kpienbaareh et al., 2019).

Participants were recruited with the help of M-CHW coordinators in each district, who helped to identify potential participants that were accessed through the networks of a large partnered research and intervention project focused on maternal care in the country. M-CHW coordinators are formal care workers who are employed at community health centres. The coordinators provided letters of information to potential participants and arranged for them to meet the interviewer in person, who further explained the objectives of the study and how the study would benefit them. This meeting served as an opportunity to answer various questions from potential participants prior to scheduling

interviews. Interviews were conducted in Kinyarwanda, the official and primary language of communication in Rwanda, by the lead author.

Most of the interviews took place at community health centres on days when participants had appointments scheduled. The remaining interviews took place at participants' homes. Interviews lasted between 45 and 70 minutes and were audio recorded with the participant's permission. During the initial meeting and before the interviews, participants were informed that their participation in the study was completely voluntary and would not have any impact on their roles as M-CHWs. They were also assured of confidentiality and anonymity and told that they could withdraw from the interview at any time if they wished. All recruited participants agreed to fully participate in the study and there were no withdrawals.

6.3.2. Data analysis

The first stage of analysis involved transcribing interview recordings from Kinyarwanda to English. Next, transcripts were loaded into NVIVO™ software, a qualitative data management program, to support the coding process. Each member of the research team individually reviewed the transcripts and identified codes that could guide a thematic analysis. A meeting was then held to identify common themes that had emerged along with the scope and scale of each. It was during this meeting that we started to identify the significance of participants' discussions about how and why they had decided to become M-CHWs. Consistent with thematic analysis (Braun & Clarke, 2014; Braun, Clarke, & Rance, 2014), we started to contrast these themes against the existing informal caregiving literature. It was through this process that the relevance of an ethics of care framing to the analysis began to emerge. We then contrasted core concepts of the ethics of care against the findings and arrived at an analytic framework built on three central concepts: responsibility, vulnerability, and mutuality. Following this, we extracted codes that related to these three concept-based themes and circulated selected extracts to all team members to confirm interpretation of each theme. Team members had independent and triangulated interactions with data throughout analysis in addition to the

computer-assisted techniques, which collectively contributed to building rigour into the analytic process (Maher, Hadfield, Hutchings, & de Eyto, 2018).

6.4. Results

We conducted a total of 20 interviews across the selected five Rwandan districts with M-CHWs who reported having been in this role for varying lengths, ranging from three months to eight years. Participants were aged between 33 and 52 years, and they were either married or widowed. They all reported having children of their own. Except for participants from Kigali-City Province, the majority reported farming activities as their primary source of income. Participants from Kigali-City Province and a small number of participants from the two other provinces reported to be either waged employees or involved in small scale businesses. Participants reported to have completed primary school; however, none of them had completed the formal twelve years of basic education (i.e., both primary and secondary school in the Rwandan education system). All participants reported having benefited from basic M-CHW training at different stages while doing this role, although none of them had been formally trained in maternal care nor was certified as a health worker. No participants reported having received training regarding how to deal with any issues that may emerge due to living in the same villages with care recipients, particularly around confidentiality or being pressured to (not) intervene.

Ethics of care perspectives advance our thinking about others' needs, and how and why these needs may compel us to act through the practice of giving or receiving care (Manning, 1992). Here we explore how M-CHWs perceived the needs of their villages and the maternal care system, and how these perceptions couple with concepts of responsibility, vulnerability, and mutuality to inform their decisions to become M-CHWs. A woman's sense of responsibility can make care work seem a duty or obligation (Noddings, 2015; Pettersen, 2011), and lead her to become a M-CHW. Vulnerability refers to the fact that both caregivers and care recipients are potentially exposed to risks and challenges through the practice of care or that caregivers can assist with overcoming vulnerabilities (Popke, 2006; Whitmore et al., 2015), and so this may inform decisions to

become a caregiver. Finally, we explore mutuality, how familial or other co-located social relations may assist M-CHWs in their roles. This support enables women to become M-CHWs in the first place and can position them for success in this role. In the remainder of this section we explore these issues of responsibility, vulnerability, and mutuality, including direct quotes throughout to enable participants' voices to speak to these care ethics.

6.4.1. Responsibility

A sense of responsibility informed women's decisions to become M-CHWs in two ways. First, some women felt an active obligation to become M-CHWs to contribute to strengthening the health system and, more generally, the post-genocide rebuilding efforts. For example, one participant said that she decided to become an M-CHW because she was *"in appreciation of what community health workers do…it is fulfilling to know that you are making a change in the lives of people in your Village.*" Another participant who used to be a traditional birth attendant mentioned that, for her, the motivation to become an M-CHW was that "*back in days, there used to be a lot of pregnancy complications leading to maternal death. I wanted to be part of a health system that strives to save mothers' lives.*" Many participants realized that human resources, among other resources, were needed to achieve better maternal health outcomes in Rwanda. Women who chose to become M-CHWs were an invaluable contribution to human resources for health at the village level, acting on the sense of responsibility they expressed towards promoting maternal health in the communities in which they lived.

Second, some women took on the M-CHW role because other community members deemed them worthy of having this responsibility. In this context, some communities carefully deliberated to determine which member(s) could fulfil the role and responsibilities of serving as M-CHW. Moreover, many participants reported that M-CHWs were often voted in because they were already involved in other community-based programs and were seen to have already demonstrated many of the qualities deemed important for this role. In this regard, one participant pointed out: "*I work with World Vision, and I provide them with information on the health status of children… Village*

members knew that I know about health already." Further, respect for privacy was considered by many participants to be part of an unspoken ethical code associated with M-CHWs' responsibilities. As one participant explained: "*Village members selected me because I am a person of integrity. I have the quality of knowing how to keep secrets… community health worker needs to have this quality. Knowing this quality of mine, the community members nominated me.*" This quote alludes to the fact that the community at large has a task to determine who is worthy of taking on the M-CHW role and who is responsible enough to enact the key qualities ascribed to this role.

6.4.2. Vulnerability

The interviews revealed that some women became M-CHWs because they knew their support and care work could assist with overcoming limitations in the health care system that made themselves and other villagers vulnerable to poor health outcomes. For example, most participants stated that they had encountered situations in which a client and her family were too poor to cover maternal health care costs, so they had to pay with their own private funds. They did so to enhance access to care for community members. One participant said that *"Mothers are satisfied, for instance, when I pay for their transport to the health centre knowing that I will not ask them to reimburse me…I help them to solve many of the issues they tell me which were difficult to handle*." In this context, the role of M-CHWs introduces vulnerabilities that affect care recipients, by creating care needs, and caregivers, by necessitating the use of personal resources when performing this role. Some of the women who had these resources in place, such as access to pocket money or private transportation, indicated this was a factor that informed their decisions to become M-CHWs. Similarly, other women chose to become M-CHWs, knowing that they could serve as advocates for vulnerable women in their communities. One participant shared that "*Although the decision to go to the health centre is made by women, there are partners who do not support that decision. In this case, I go to their home and talk to both of them to convince the partner*." Some women chose to become M-CHWs because they felt they could navigate such ethical vulnerabilities particularly well.

All participants we spoke with realized that taking on the M-CHW role introduced new vulnerabilities in their lives, and that they took on this role despite this being the case. For example, many realized that living near care recipients could create challenges around privacy in terms of maintaining the confidential details of those they were caring for in their villages. A key challenge identified by participants was the lack of private spaces within which they could provide care in their villages. One participant explained that her own home could not always be a private space as care recipients may see one another, which introduces new vulnerabilities: "*Some people like privacy regarding their family planning use…at my home, they meet with other clients… An unmarried girl may need to keep her family planning private… Neighbours may meet her at my home and tell people."* Another participant explained that "*people [can] misinterpret the use of family planning"* when they had seen someone using M-CHW services, which could bring reputational harm to care recipients. Such reputational harm could be extended to M-CHWs if it was thought that they were providing care for women who, for example, had participated in sex outside marriage. Risky outcomes such as these illustrate how vulnerability can be mutually experienced in the context of village-level maternal care in Rwanda.

6.4.3. Mutuality

An important facilitator of many women's willingness to become M-CHWs was having the support of, and anticipated continued support from, other village members. In this context, people such as village leaders and health workers at community health centres mutually undertook care work at the local level by supporting M-CHWs. For example, a participant stressed that: "*I decided to become an M-CHW because I knew that there would be a close collaboration with the head of the Village and the health centre as the main actors in maternal health in our community."* Such mutuality benefitted both the person needing maternal health services and the M-CHW, who got the support needed to provide the best services possible. Many villagers who did not hold leadership roles were not only likely care recipients of M-CHW services, but they were also people who supported this form of care practice: "*I encourage my neighbours to inform me on what is going wrong so that we can look for solutions together*." Some

participants explained that because village members had bestowed them with the responsibility of being an M-CHW, they also felt as though they needed to support this care so that care workers did not feel isolated or have to address any burdens or problems alone.

Something that came across clearly during the interviews was that some women chose to become M-CHWs because friends and family promised to support them in that role. Many explained that not only was such support encouraging, but it let them know that people in their networks would be there to assist them during times of need or when their responsibilities seemed too much to handle. One participant mentioned that she was encouraged by her partner to become an M-CHW "*when our children started school, my partner encouraged me to become an M-CHW so that I could help other pregnant women to know the kinds of maternal health services available to them."* In the same context, another participant shared that "*my children kept insisting that I should do it…they know how I like helping people, and I realized that I should do it. My eldest son goes with me when I have to see women at night."* The role of M-CHW was not only time consuming, but also it demanded financial and social sacrifice, hence getting signs of support from friends and family was an important factor in the process of deciding to take on this role.

6.5. Discussion

The findings shared in the previous section showed that the reasons Rwandan women become M-CHWs are tied to the conditions in which they provide care and form particular care ethics that shape how responsibility, vulnerability, and mutuality play out in this context. The M-CHW role, its care ethics, and the wider conditions of care are heavily reinforced by the geographical proximity between M-CHWs and the communities they serve. The geographically embedded nature of these care practices in the community context not only shape how and why informal care unfolds but also some of the motivations for why women opt to become M-CHWs in the first place. Moreover, the relationships between M-CHWs and care recipients introduce a vulnerability associated with providing informal care in a resource-limited community setting. The involvement

of M-CHWs as care providers in the communities in which they live both builds and draws upon mutuality, illustrating how the community is also responsible for intervening as needed in order to facilitate both care work and the delivery of maternal care at the community-level in Rwanda.

Previous studies on community members' involvement in delivering primary health care have shown that not everybody is suitable to take on such roles and care responsibilities (Liu et al., 2011; Zulu, Kinsman, Michelo, & Hurtig, 2014). The current study supports this, showing that a number of factors come into play in determining who is suitable to take on the M-CHW role. While these factors are certainly evaluated by women who are considering becoming M-CHWs, several factors identified in the current analysis are outside the scope of their personal control. For example, while a woman may be able to decide for herself whether or not she is willing to put off some paid work in order to provide maternal care in her village, whether or not her fellow villagers deem her responsible enough to become a M-CHW or her friend and family networks will lend the practical and instrumental support needed for her to provide this care are beyond her personal control. In contrast, whether or not a woman feels she can navigate the complex privacy issues and other potential vulnerabilities associated with providing informal care in her home village is very much for her to assess. Other research (Mpembeni et al., 2015) has documented how close proximity of co-residence can aggrevate tension between villagers and CHWs, leading women to turn away from this role. Overall, our findings support research that has documented instances of people who appear to be a good fit being voted into the CHW role, only to find the person did not have the interpersonal skills to navigate this role and therefore did a poor job (Saprii, Richards, Kokho, & Theobald, 2015; Winn et al., 2018). In sum, other villagers' assessments of who is suitable to become an M-CHW in Rwandan communities is not enough to determine who should take on this role; this analysis has pointed to a number of complex factors women consider in making a decision to become a M-CHW.

Our exploration of care ethics at play in Rwandan women's decisions to take on the M-CHW role also demonstrates how potential and current volunteers could be better supported. As alluded to above, it is difficult for M-CHWs to navigate how much

information to share in their communities and the imperative for transparency, trust, and collaboration to promote maternal health (Ludwick, Brenner, Kyomuhangi, Wotton, & Kabakyenga, 2013; Namazzi, Peter, John, Olico, & Elizabeth, 2013; Winn et al., 2018). This is a particularly critical consideration to weigh during the process of deciding whether or not to become an M-CHW, given the increased complexities associated with close geographical proximity between care providers and care recipients. Meanwhile, M-CHWs receive only very basic training before they start providing care work (Condo et al., 2014), and none of the participants in this study reported receiving any training or support regarding how to maintain confidentiality or address pressure coming from community members. This may serve as a missed opportunity in terms of supporting these informal care workers in learning ways to address issues of transparency, trust, and collaboration at the community level that inform mutuality and vulnerability in particular.

Such training can also assist women in determining where their responsibilities to themselves, care recipients, and their communities begin and end. For example, other studies have also shown that M-CHWs utilize personal resources, such as money and food, to fulfill this role, which can lead to burnout or other emerging challenges (Jaskiewicz & Tulenko, 2012; Mwendwa, 2018). Deeper training and mentorship could help address the vulnerabilities that M-CHWs frequently face when providing care in resource-limited conditions (Mundeva et al., 2018). Proving this support for M-CHWs is also consistent with the ethics of care model, which stresses that caring for carers is important to minimizing caregiver burden and supporting informed consent (Pettersen, 2011).

Very few studies have explored interconnectedness, particularly in the context of close geographic proximity, and care provision in the primary health care and the geographies of care ethics (McEwan & Goodman, 2010). Our findings indicate that M-CHWs rely upon support from their families and friends, and factor this anticipated support into decisions about whether or not to take on this role. This complicated relationship of support highlights the ways in which mutuality and vulnerability extend beyond the dyad of M-CHWs and those for whom they are caring, potentially impacting M-CHWs' friend and family networks. Meanwhile, the nature of the relationships that an

M-CHW has with her friends and family could have an impact on maternal health service availability, and ultimately utilization, in her village. Enhanced M-CHW support during the decision-making process may be well served by addressing the relationships between M-CHWs and those in their personal support networks in order to assist with offsetting burden and burnout. In many ways, such support would assist with ensuring that the needs of those who care for the carer are addressed, which, again, is reflective of an ethics of care approach (Pettersen, 2011).

A study conducted in Ethiopia and Mozambique has shown that CHWs in these countries often decide to perform this role not only because of a sense of responsibility they feel towards their communities but also because they see progress in maternal health and feel positive about the development of their countries (Maes & Kalofonos, 2013). Our analysis is consistent with this finding. Other studies have documented the benefits of taking on the CHW role, including the support women receive from other community members, the status they gain in the community, and indirect benefits related to doing this role including health literacy and collaboration with health professionals and local leaders (Ruano, Hernández, Dahlblom, Hurtig, & San Sebastián, 2012). While this same set of benefits was not discussed by the current participant group, it is clear that the M-CHWs we spoke with considered anticipated benefits to themselves, their villages, and the health system in deciding to take on this role. Future research needs to more deeply explore Rwandan women's decision-making in opting to become M-CHWs and determine if the factors they considered, including the anticipated benefits, were actually realized once they got underway with this care work. The outcomes of such research have significant potential to inform the development of informational interventions, such as information sessions or facilitated conversations with health workers and village leaders prior to becoming elected as M-CHW.

6.6. Conclusion

The transformation of Rwanda's health system to operate under a model that integrates CHWs as a fundamental component of primary care provision has been successful in the sense that communities have come together to understand and respond

to the need to participate and collaborate in strengthening health care and thus health outcomes (Maurice Bucagu et al., 2012). The current study has explored this in relation to the provision of maternal care at the village level by informal care providers elected by villagers, and specifically the ethics of care that inform this role and women's decision-making to become M-CHWs. Through interviews with 20 M-CHWs who span caring for villagers in urban and rural contexts, we found that some women express a sense of responsibility to become a M-CHWs and contribute to women's health outcomes in their villages, thereby drawing on a sense of mutuality, despite the vulnerability that accompanies this role.

The interview findings also show that village members are involved in the decision-making process regarding M-CHWs and have the responsibility of choosing women who are best suited to perform this role. Some village members (e.g., family and friends, village leaders, formal health workers) also need to support them if they are to facilitate positive maternal health outcomes. Given the very strong reliance of Rwanda's health system on M-CHWs and the CHW program more generally, health system planners and administrators would benefit from looking for strategies that contribute to supporting informed decision-making regarding taking on this role, care barriers, satisfaction, and retention of M-CHWs in order to contribute to program sustainability. Doing so would help M-CHWs and communities, in general, to develop common understandings of responsibilities and expectations of the various CHW roles and how to promote a community-based collaboration in maternal healthcare aimed at improving maternal health outcomes.

Chapter 7.

Conclusion

In this dissertation I aimed to explore different community-level aspects that facilitate or inhibit access to maternal health services in Rwanda. Maternal community health workers (M-CHWs), who are volunteers elected in their communities, are an integral part of the health system and play an essential role in linking women to the formal health system. I used a qualitative research approach to understand the ways M-CHWs facilitate access to maternal health services and to explore the experiences of women using their services. Through a case study methodology, I conducted in-depth interviews along with field observation in both rural and urban settings of Rwanda to capture these insights. I also explored the different dynamics involved in electing M-CHWs and what it looks like to have a voluntary workforce as a critical component of primary maternal health in the country. To this end, I wanted to understand how M-CHWs are selected in their communities and what motivates them to be part of this role, in addition to exploring the varied ways they provide equitable access to maternal health services. In this chapter I synthesize the key contributions across the three analyses that comprise this dissertation, revisit the objectives laid out in Chapter 1, and identify some crosscutting directions for future research.

7.1. Key contributions

As revealed through the different chapters of my dissertation, community members can play a pivotal role in promoting positive maternal outcomes in Rwanda. Elected to link communities to the formal health sector, M-CHWs play an essential role in ensuring that women get the health care they need on time (Tuyisenge, et al., 2019). This is done through providing fellow villagers with information about what services they are likely to need at different stages of their pregnancy, how to prepare for the baby, how parents should care for themselves and their own health, and also about the importance of accessing health facilities for delivery assisted by skilled birth attendants. The critical

contributions of my dissertation research lie in the non-negotiable roles that M-CHWs play in getting maternal health services into communities. My research also highlights the significance of building a sense of community that Rwandan people can apply to maternal health, using different measures to ensure that women get needed care on time. Through that sense of community, I highlighted the importance of the collaboration between community members, community leaders, maternal community health workers and health professionals in identifying what is needed for women to access adequate, equitable maternal healthcare using the (often limited) available resources in each community.

Even though M-CHWs are spread across the country, the analyses that comprise my dissertation shed light on sometimes similar initiatives put in place by different communities to promote better maternal health outcomes at the local level. Such initiatives were implemented at the community level, depending on the available resources. As stressed in this dissertation, such initiatives have promoted access to maternal health care services in different aspects. For example, women in the same village may gather into a mutual fund to save for health insurance or to buy baby items. M-CHWs oversee such initiatives, and there is a collaboration with local leaders to enhance partnerships with village members to ensure that maternal health is among the priorities of the village. These collective efforts demonstrate how maternal health has become everyone's concern and not just that of pregnant women. I believe that such initiatives are also a way to increase community ownership in promoting equitable access to maternal health care, by involving different stakeholders and by taking advantage of available resources to tackle the most pressing challenges to access maternal health services at the community level and beyond.

Using a case study of how M-CHWs have contributed to promoting maternal health in Rwanda, my research has shown how the Rwandan government's unprecedented efforts to support maternal health are heavily dependent on the unpaid labour of community members. The physical proximity between M-CHWs and women is an essential aspect of their role, and it is important to acknowledge the advantages of this proximity in policies and interventions supporting maternal health while keeping the

discussions open about its possible disadvantages. Doing so will help to ensure that both maternal care seekers and providers are in safe environments when it comes to promoting positive maternal health outcomes in the context of community relationships.

There are a number of maternal health care related disciplines and areas of research that my work builds on and contributes to. These include: access and utilization of maternal health services; maternal health attitudes and beliefs and their impacts on maternal health outcomes; the use of technology, for example, the texting technology used by M-CHWs to remind women of antenatal care appointments; and access to sexual and reproductive health services among teens and the stigma surrounding the use of maternal health services for this population group. As suggested through the SDGs (Bongaarts, 2016), it is important to notice the suggested indicators to track maternal mortality and morbidity in order to track progress on improved maternal health. This research highlights the potential of M-CHWs in contributing to such progress.

7.2. Objective 1: Identify micro-scale factors that facilitate or detract from women's access to maternal health care at the community level

I addressed my first objective by asking the following research questions: What are the structural, geographical, social-cultural, and economic factors that act as facilitators or barriers to accessing maternal health services at the community level in Rwanda; and, how do they relate to conventional understandings of access to care? This question is addressed in Chapter 2, where I highlighted how different dimensions of access to health care (accessibility, affordability, availability, accommodation, and acceptability) are applied to the context of access to community maternal health care in Rwanda. As described in Chapter 1, access to community maternal health care is a form of primary health care, whereby community-based efforts are encouraged to meet the needs of community members (Andrews & Crooks, 2010). To this end, I highlighted the role of the places where people live, specifically their communities and the infrastructure (e.g., roads) that support them, an important aspect of health geography (Kearns & Collins, 2010) in shaping the different dimensions of access to maternal health services

offered at the community level. The physical environments, socio-cultural settings, and locally available resources are place-based factors that impact women's access to maternal health services in their communities and, in return, they impact the maternal outcomes of women in a given community. In Chapter 2, I reported the findings from in-depth interviews with women who used services offered by M-CHWs. Participants expressed what facilitated access to such services, such as the proximity to M-CHWs. Such access was not only shaped by factors such as distance and transportation, but also affordability (especially since they do not have to pay services offered by M-CHWs).

As highlighted in both Chapters 1 and 2, there are still inequities in access to maternal health care within and across Rwandan communities that shape poor maternal health outcomes (Bambra, 2018). For example, despite having M-CHWs living in their villages, participants expressed that they are not always available when needed. This reality, which also shapes access, is explained by the fact that M-CHWs are volunteers elected to do this role but who have to make a living otherwise. Such findings regarding how waged labour affects unpaid care responsibilities have been observed elsewhere in places where voluntary workers are involved in health care provision (Scott et al., 2018). Not only can their availability construct irregularities in maternal health care access and provision, but also their financial abilities to miss out on work hours or to cover some of the transportation or supply costs for the mothers they care for all translate into inequities of access to maternal health services in the communities. Hence, regardless of the M-CHW program being scaled up to the country level, every community will have different factors that either facilitate or challenge women's access to maternal health care at the community level. In Chapter 3, I highlighted some of the community-based (and often M-CHW-driven) initiatives that have been implemented to promote access to maternal health. Such initiatives stress the role that M-CHWs play in taking ownership of improving maternal care outcomes through collaboration with other community members.

By focusing on the dimensions of access to maternal health care at the community level in Rwanda, I have addressed the objective of understanding the micro-scale facilitators or barriers to access maternal health care at the community level. I believe

that by understanding the different dimensions of access to maternal health care in communities, it is possible to begin to identify and catalogue the varied ways each community can promote access to maternal health services based on their own needs and resources. Doing so makes it possible to identify interventions and activities that can be replicated in other communities, provided that they take into consideration the similarities and differences in settings and are able to adjust them for appropriate and community-accepted measures for sustainability.

7.3. Objective 2: Explore the micro-scale factors that facilitate or detract from maternal community health workers' abilities to provide equitable maternal care at the community level

I addressed my second objective by asking the following research questions: 1) What are the specific strategies that M-CHWs employ to provide equitable maternal care while operating in a low resource setting; and 2) How are M-CHWs selected in their communities and what motivates women to take on and fulfil this voluntary role? The first research question was addressed in Chapter 4 using findings from in-depth interviews with M-CHWs. Specifically, I highlighted the different strategies they deploy to facilitate equitable maternal health care services in the communities where they are elected to perform this role. The chapter acknowledges barriers to the provision of maternal health services by M-CHWs, strongly considering the voluntary nature of their role and the types of resource-limited settings in which they operate. The chapter described these strategies, including community building; physical landscapes; the post-crisis socio-political environment in Rwanda; and the strategies used by M-CHWs to circumvent the constraints of a resource-poor setting. The chapter stressed the instances in which the four aspects constructed either barriers or facilitators to providing equitable maternal health care in the communities. Through Chapter 3 I evoked the role of M-CHWs in leading the implementation of community-based initiatives that are observed across the country and within communities to promote access to maternal health care in Rwanda. In Chapter 4, I highlighted the ways M-CHWs, through such initiatives and by being part of the health system, facilitated equitable access to maternal health care while

operating in a resource-limited setting. As stressed in Chapter 1 and in accordance to previous studies (Gilmore & McAuliffe, 2013; Haver et al., 2015; Zulu et al., 2014), M-CHWs played an essential role in ensuring that maternal health care is accessible to women in the communities. They do so by involving community members and building on community partnerships to ensure timely utilization of maternal health services.

By focusing on the different strategies of M-CHWs to facilitate equitable access to maternal health care, I addressed the objective of exploring the micro-scale factors that facilitate or detract from M-CHWs' abilities to provide equitable maternal care at the community level. Having a community-based structure has been praised in promoting maternal health outcomes, mostly in remote communities (Perry et al., 2014; Zulu et al., 2014). In Rwanda, the country's politico-economic context stresses the importance of involving communities in promoting health outcomes, among other development aspects (Binagwaho et al., 2014). Community partnerships are a crucial element in ensuring the sustainability of the M-CHW program, and in order to strengthen the program collaboration with other stakeholders in maternal health is needed (Gilmore & McAuliffe, 2013). In Chapters 4 and 6 I highlighted the ways such partnerships worked in the context of capacity-building, showing how M-CHWs and elected community leaders collaborate to promote access to maternal health care.

The second research question related to my second objective was addressed in Chapter 6, where I employed an ethics of care lens to understand the place of community health workers in Rwanda's maternal care system. In this chapter, I answered the questions of why women decide to become M-CHWs and how they fulfil this voluntary role. I drew on previous research where an ethics of care has been applied to the context of informal caregiving (Whitmore et al., 2015) to stress how responsibility, mutuality, and vulnerability shape the M-CHW role in promoting access to maternal health care in Rwanda. As revealed in Chapter 4, M-CHWs who are elected by community members often go above and beyond to facilitate equitable access to maternal health care. In Chapter 6 I highlighted what motivates women to take on this role; which, in accordance to other studies, comes from their sense of responsibility and need to be part of the change in their communities (Mpembeni et al., 2015). Meanwhile, the obligations and

expectations of the community members may expose M-CHWs to vulnerabilities that accompany this role (Gilmore & McAuliffe, 2013). Nonetheless, I showed how communities, and specific community members, mutually collaborate to strengthen this role with a goal to promote maternal health outcomes.

In Chapter 6 I stressed the role of geographic proximity in community maternal health care provision in Rwanda. Health geography helps to untangle the meanings of this proximity in the context of health care provision (Connell & Walton-Roberts, 2015). Most specifically, the ethics of care when applied to the field geography, emphasizes on the advantages and disadvantages of having such a proximity for community-based program and the different meanings that accompany both maternal health care seeking and maternal health care provision. In Chapter 6, I stressed that care ethics should be taken into consideration to ensure the sustainability of M-CHWs program.

7.4. Limitations

There are a number of study limitations. For example, due to a temporal cutoff for data collection, I did not have enough time in the field to interview other stakeholders associated with the M-CHW program, including the coordinators of M-CHWs who are based at the health centre-level and also women who did not use M-CHWs services in the villages. It would have been informative to get insights from these two stakeholder groups considering the different positionings they hold relative to the delivery of M-CHWs services, the organization of the program and limitations to its use. Having such information could have helped to better understand the views of women who do not use M-CHWs services, as well as the views of M-CHWs on delivering services to their communities. In addition, such information could provide insights into how M-CHWs can best collaborate with other levels, including local leaders and the coordinators at local health centres. However, the data that was collected is substantial and informative for understanding the different ways the M-CHWs' work is conducted at the village level.

In addition, it was not possible for me to observe interactions between women seeking maternal health services and M-CHWs during my time in Rwanda due to time

constraints. The experience of using observation as a research method could have added more insights into the interactions between the service provider and the service seeker. The neighbourly proximity of M-CHWs to the women they serve adds an interesting dynamic to the professional relationship. Observing a scene where an M-CHW visited with a woman to provide maternal health services or when a woman went to a M-CHW for service could have enlightened further aspects of the analysis I presented in Chapter 6.

Lastly, my positionality as a researcher and my familiarity with the communities where I conducted in-depth interviews serves as both a strength and a limitation. As a Rwandan woman born and raised in the country, I understand the local cultures of the communities I studied. This familiarity positioned me as an insider not only because I spoke the language and understood the culture, but also based on the fact that I was familiar with the Rwandan health system. However, I have never needed to use maternal health care services, which made me an outsider to the topics I was exploring with the women I interviewed. Nonetheless, I believe that my understanding of the culture and my experience working with women and in the health sector all contributed to having a harmonious discussion with participants and richly nuanced datasets for my dissertation research.

7.5. Future research directions

This research generated several future research ideas. The first one is to explore the experiences of community members on their perceptions of M-CHWs. There is a strong sense of responsibility that community members express by selecting the person who will be in charge of maternal healthcare. Since all community members come together to decide who should be a M-CHW, it would be valuable to gain an understanding of the experiences that shape the decision-making of community members while electing M-CHWs and collaborating with them to promote maternal health in their communities. Such insights would also bring to light what direction the communities would like to see the community health workers program take in their villages. Such

knowledge could strengthen collaboration between community members and ensure the sustainability of the M-CHW program.

Similarly to researching with community members, this dissertation points out an area of interest in terms of individuals involved in maternal health. It would be of high interest to understand the views of men and other community members on men's involvement in maternal health. Once these views are explored, it may be easier to come up with strategies that can increase men's participation in women's maternal health. Another area to explore in this context is the case of single mothers, especially younger, unmarried women who are sometimes left on their own to take care of their babies. Research that relates to teen pregnancy is needed in Rwanda, focusing on what is driving the growing numbers and what role communities can play in promoting safe sexual reproductive health among teens.

7.6. Conclusion

My dissertation provides an exploratory case study of a community-based program aimed at promoting equitable access to maternal health care in Rwanda. Across three analyses, I have offered insights on different dimensions of access to maternal health care services offered at the community level, how elected community volunteers facilitate this access, and what motivates them to fulfill this role. My research acknowledges the remarkable community partnerships that contribute to more equitable access and provision of maternal care services. Despite the community efforts, having a program integrated into the health system constructs a strength in the sense that the reporting and program implementation are harmonized across the country, which facilitates planning and resource allocation among M-CHWs to promote access to maternal healthcare. However, since every community is different, some initiatives are specific to that community and are not necessarily replicated due to differences in resources, settings, and environments. Hence, to ensure M-CHW program sustainability, efforts at the Ministry of Health level should be made to revisit the program, taking into consideration the major needs and resources of communities and prioritizing what works

in each community to promote access to maternal health while balancing the support needs of M-CHWs.

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Appendix.

Interview Guides

1. Interview guide for women

Complete consent process and ask if there are any questions about the study

Background

1) Please start by telling me about yourself and your family, age, where you live, marital status, number of children, profession, people you live with

General overview on maternal health services in the community

2) Where do you seek for maternal health services in your community? Probe: From CHWs, Community Health Center, Private clinic, Traditional healer/birth attendant

3) How would you describe the quality of all types of maternal health services offered to women at the community level? Probe: Educational, antenatal care, pregnancy screening, family planning

4) Tell me which maternal services you used.

a. When did you use these services?

b. What motivated you to use them?

Geographical access factors

5) Tell me about what it's like to actually get to a maternal health service appointment in your community.

a. How do you get there?

b. Is this method of transportation affordable/available/accessible to you? Is it safe for you? If not, what are the risks?

c. Can the weather impede your access? What about road maintenance? Or even other factors?

d. Are there any other challenges you face in getting to your appointment that you have yet to discuss? What are they?

Understanding the appointment day

6) Tell me what your day is like when you have a maternal health service appointment.

a. Does it differ at all from any other day? If so, how?

b. Is there anything you need to plan for in order to attend your appointment? (e.g., childcare, transportation) Is such planning easy or difficult for you? Why?

c. Are there activities or actions that other members of your household undertake on appointment days in order to support making the appointment? (e.g., driving to and from, taking on household tasks, etc.)? How comfortable are they with taking on these activities and actions? And how comfortable are you with seeing them in this role?

Household dynamics regarding appointments

7) Is there anyone else in your household involved in making the decision regarding whether or not you will schedule or attend an appointment? Tell me about this. Do you find their involvement helpful? Welcomed? Challenging?

8) Are people in your household supportive of your decision to use maternal health services? Why? What about members of your larger family who are not part of your household? Does their support in this regard matter to you at all?

Community dynamics regarding accessing care

9) Do you think that your neighbours and other community members know of your decision to use maternal health services? Do their opinions or support matter to you at all?

10) Are there any specific actions or activities involving your neighbors that you have to do in order to access maternal health services on appointment days?

11) Do you think of the people who provide your maternal health services as members of your community? Why, or why not?

12) Are there any things that your maternal health service providers do on your appointment days or in preparation for your appointment days that ease your access to this care? (e.g., arrange an appointment at a convenient time, give money or produce as incentive, offer to farm for them, attending community meetings/gatherings where maternal health information is provided, being part of women associations…). Are their activities or actions in this regard needed and/or helpful?

Economic access on appointment days

13) What are the financial demands or burdens of attending a maternal care appointment? And how do you manage them? (e.g., transportation costs, loss of income, farming yield, needing specific baby items, obtaining new clothing, cleaning clothes)

14) How far in advance of an appointment do you need to start planning for this financial impact? And will this financial impact affect what you can do on other days before or after the appointment (e.g., avoiding shopping, working extra hours)?

Closing

Is there anything else you would like to add?

2. Interview guide with maternal community health workers

Complete consent process and ask if there are any questions about the study

Background

1) Please start by telling me about yourself (Profession, years of experience as a CHW, CHW training, educational background, age)

2) Could you please share with me how you were selected to become an M-CHW?

3) What motivated you to become an M-CHW?

General overview on maternal health services in the community

4) Where do women seek maternal health services in your community?
Probe: From CHWs, Health Center, Private clinic, Traditional healer/birth attendant

5) How would you characterize the quality and accessibility of care provided by CHWs here when compared to other forms of maternal health services available in your community?

6) How often are these services offered (weekly, monthly)? How many women use these services per session?

7) Tell me about the women who access M-CHW care here in your community. (Probe: Age range, marital status, household structure, proximity to the residence of CHW, economic status)

8) What are some of the reasons why women in your community access care from CWHs? (Probe: Health concerns, information, advices, reference to health center)

9) How do women in your community first typically learn about CWHs? And how do they go about booking and then keeping appointments with CWHs?

(Probe: arrange an appointment, give you money or produce as incentive, offer to farm for you, attending community meetings, etc.)

10) Tell me about other people involved in maternal health service provision in your community (Other CHWs, community leaders, health professionals).

11) How does the collaboration / relationship with them affect your work?

Geographical access factors

12) Tell me about what it's like for women to actually get to a CWH appointment in your community.

a. How do they get there?

b. Are the different methods of transportation affordable/available/accessible to them? Are they safe for them? If not, what are the risks?

c. Can the weather impede their access? What about road maintenance? Or even other factors?

d. Are there any other challenges they face in getting to the appointment that you have yet to discuss? What are they?

13) Tell me about what it's like for you to actually get to where services are delivered in your community.

a. How do you get there?

b. Are the different methods of transportation affordable/available/accessible to you? Are they safe for you? If not, what are the risks?

c. Can the weather impede your access/work? What about road maintenance? Or even other factors?

d. Are there any other challenges you face in getting to the service location that you have yet to discuss? What are they?

Understanding the appointment day

14) Tell me what the day is like when women have a maternal health service appointment.

a. Does it differ at all from any other day? If so, how?

b. Are there things they need to plan for in order to attend their appointment? (e.g., childcare, transportation) Is such planning easy or difficult for them? Why?

c. Are there activities or actions that other members of their households undertake on appointment days in order to support making the appointment? How comfortable are they with taking on these activities and actions? And how comfortable are women with seeing them in this role?

15) Tell me what the day is like when you have to provide maternal health service.

a. Does it differ at all from any other day? If so, how?

b. Are there things you need to plan for in order to attend the appointments you schedule with women? (e.g., childcare, transportation). Is such planning easy or difficult for you? Why?

c. Are there activities or actions that other members of your household undertake on appointment days in order to support making your service provision? How comfortable are they with taking on these activities and actions? And how comfortable are you with seeing them in this role?

Household dynamics regarding appointments

16) Is there anyone else in the household involved in making the decision regarding whether or not a woman will schedule or attend an appointment? If so, have you ever had to speak or interact with this person in order to have an appointment approved? Tell me about this. Do you find their involvement helpful? Welcomed? Challenging?

17) Are people in women's households supportive of their decision to use maternal health services? Why? What about members of the larger family who are not part of their households?

a. Does their support in this regard matter to women at all?

b. If you think this support matters, is there anything you typically do to help women facilitate getting this support?

18) Is there anyone else in the household involved in making the decision regarding whether or not you should attend to women's appointment? Tell me about this. Do you find their involvement helpful? Welcomed? Challenging?

19) Are people in your household supportive of your role as CHW? Why? What about members of the larger family who are not part of your households?

a. Does their support in this regard matter to you at all?

b. If you think this support matters, is there anyone else involved to help you facilitate getting this support? (Other CHWs, Health professional(s) in your community, local leader)

Other dynamics regarding accessing care

20) What do you think that neighbours and other community members typically think about women's decisions to access CHW care? And do you think their opinions are important?

19) What type of relationship do you try to develop with the women you treat? What are things that help and hinder establishing this relationship? Are there any ways that friends, neighbours or community members play a role in developing this relationship?

20) Are there any things that you do on the appointment days or in preparation for appointment days that ease women's access to this care?

21) What do you think that your neighbours and other community members typically think about your role as a CHW? And do you think their opinions are important?

22) What type of relationship do you try to develop with the people in your community to support your role as a CHW? What are things that help and hinder establishing this relationship? Are there any ways that friends, neighbours or community members play a role in developing this relationship?

23) Are there any things that other CHWs or community leaders do on the appointment days or in preparation for appointment days that ease your service provision? Are their activities or actions in this regard needed and/or helpful?

Economic access on appointment days

24) In your experience, what are the financial demands or burdens of attending a maternal care appointment both for women and for yourself as a CHW? How are these demands or burdens managed?

25) How far in advance of an appointment do women need to start planning for this financial impact? And will this financial impact affect what they can do on other days before or after the appointment ? and what about for yourself?

Closing

Is there anything else you would like to add?