ASSESSING THE ENABLERS AND CHALLENGES ON PERFORMANCE OF COMMUNITY HEALTH VOLUNTEERS DURING THE COVID-19 PANDEMIC: A MIXED-METHODS STUDY OF MACHAKOS COUNTY

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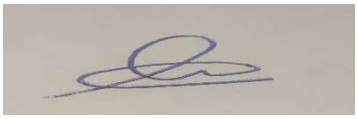
H56/37573/2020

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE CONFERMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING (COMMUNITY HEALTH) OF THE UNIVERSITY OF NAIROBI

NOVEMBER, 2022

DECLARATION

This dissertation is my original work and has never been submitted for any academic award or published in any other university or any other institution of higher learning for the purpose of awarding a degree.

Signature:  Date: 28/11/2022

APPROVALS

APPROVALS

SUPERVISORS' APPROVAL

This dissertation has been presented for assessment with our authorization as academic supervisors. This is in partial fulfillment of the University of Nairobi's award of the Master of Science in Nursing (Community Health) degree.

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ACKNOWLEDGEMENT

It is with great humility that I acknowledge the contributions and efforts of all my lecturers, colleagues, and most importantly my supervisors Dr. Lucy Kivuti-Bitok and Dr. Angeline Chepchirchir Kirui for their invaluable assistance, immense support and intellectual contribution in drafting the proposal and writing the final dissertation. Their guidance and great expertise in scholarly work and research helped me improve my critical writing skills. It is their great contribution and interaction that has polished not only my academic but also my professional life.

I would also like to appreciate my colleagues at the University of Nairobi and my friends that kept on encouraging me during the writing process. I would like to extend my special thanks to my son and daughter for their support and prayers.

Above all, I give all the glory to God for taking me this far and helping me endure all the challenges that came my way.

DEDICATION

I would like to dedicate this dissertation to my children Rommy and Macri, my parents John and Margery. Your affirming words always at the right moment since I was a young girl have been like light switches in my life, lighting up a whole room full of possibilities.

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LIST OF ABBREVIATIONS

CDC	Center for Disease Control
CHAs	Community Health Assistants
CHEWs	Community Health Extension Workers
CHS	Community Health Strategy
CHU	Community Health Unit
CHVs	Community Health Volunteers
CHWs	Community Health Workers
COVID -19	Novel Coronavirus Disease
ERC	Ethics and Review Committee
KHIS	Kenya Health Information System
NGOs	Non-Governmental Organizations
PHC	Primary Health care
SDG	Sustainable Development Goals
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Enabler - A situation that enhances performance

Challenge - A situation of facing difficulty in role performance

Community Health Volunteers - Individuals who assist individuals to adopt healthy behavior

Health indicators - A quantifiable characteristic of a population which can be used as evidence of describing the health of a population.

Households - Comprises one or more individuals occupying one housing unit.

Work output - The result of work carried out.

ABSTRACT

Background: The Coronavirus disease 2019 (COVID-19) pandemic, imposed a strain on healthcare systems around the world posing significant obstacles for healthcare providers everywhere in the world. Weaker health systems which are synonymous with the developing countries were the most affected with serious impairment in health service delivery. There is, however, limited information on the enablers and challenges of community health workers' performance during the COVID-19 pandemic.
Objective: This study assessed the enablers and challenges on performance of community health volunteers in Machakos County, Kenya during the COVID-19 pandemic.
Methodology: A cross sectional mixed methods survey was carried out. Data was collected from community health volunteers (CHVs) from various community health units (CHUs) in different sub-counties in Machakos County. Structured questionnaires and focused group discussion guides were used to collect data on the enablers and challenges faced by CHVs during the COVID-19 pandemic while data on the CHVs' work output, for the period 2019 - 2021, was extracted from the Kenya Health Information System (KHIS). The data was entered and cleaned in Excel then analyzed with SPSS version 25.0. Quantitative data derived from the questionnaires and the MoH 515 was analyzed through descriptive statistics in the form of frequencies and percentages. This was summarized and presented in tables, graphs and charts. Qualitative data emanating from the FGDs and open-ended questions in the questionnaires were analyzed through thematic analysis from which conclusions were generated and findings presented verbatim.
Results: The common enablers of CHVs during the COVID-19 pandemic were belonging to a social support group in their community (85.1%, n = 240) and appreciation of the CHVs efforts by their communities (99.3%, n = 280). However, the leading challenges experienced by the CHVs during the COVID-19 pandemic were inadequate or delayed stipends (100%, n = 282); concerns about contracting COVID-19 during their work (82.3%, n = 232); excessive workload (90.4%, n = 255); difficulties in transport (94.7%, n = 267) and lack of tools and materials (92.2%, n = 260). Contrary to the multiple challenges experienced by CHVs, their work output level seemingly improved as marked by an increase in the number of women aged 15 - 49 years provided with FP commodities that rose from 3,691 in 2020 to 4,212 in 2021. The number of pregnant women counseled on ANC services rose as well from 406 in 2020 to 1,742 in 2021.
Conclusion: Belonging to a social support group and appreciation of CHVs efforts by the community constituted the enablers of CHVs, while lack of recognition and inadequate stipend were the leading challenges experienced by the CHVs as they had to bear the high cost of living and transport experienced during the COVID-19 pandemic. The performance of CHVs in Machakos County improved during the COVID-19 pandemic.
Recommendations: Performance of community health volunteers in Machakos County remained impressive during the COVID-19 pandemic despite the challenges encountered. The county government of Machakos should make efforts to enhance the performance of CHVs in the county through providing better working conditions and reviewing their remuneration. There is a need to create more awareness on the role of CHVs in improving the health of communities.

CHAPTER ONE: INTRODUCTION

1.1 Background

The COVID-19 flare - up, which began in December 2019 in Wuhan City, China, now affects all regions of the world or jurisdictions worldwide. The pandemic put a strain on the world's healthcare systems. Improved health manpower utilization and assistance are central tenets for improving health system efficiency (Bhaumik *et al.*, 2020). The coronavirus infection 2019 (COVID-19) pandemic has posed new experiences for healthcare experts all over the world. There is a paucity of data about these issues in most third world nations including Kenya (Razu *et al.*, 2021).

The involvement of community health personnel to offer definite basic health services to their societies is a growing trend around the world. The World Health Organization recognizes a vital component of the expanding human resource downturn, especially in impoverished countries, as a deficiency of professional health workers. Regrettably, large-scale and small-scale community-based projects alike have encountered lots of challenges.

In many jurisdictions, community health workers (CHWs) make up a large fraction of the forefront health care workforce, and they have the capacity to play a crucial part in the control and prevention of pandemics such as COVID-19 (Hartzler *et al.*, 2018). Community health workers (CHWs) are non-medical, close-to-community professionals who serve as liaisons clinical professionals isolated or vulnerable populations (Olaniran *et al.*, 2017). Community health personnel are lay health advocates who assist in mitigating health disparities while building trusted patient-provider relationships. Typically, they are chosen from inside the

community they serve. Specifying the health needs of communities, especially vulnerable cohorts such as the elderly, disabled, women, and children, and capturing epidemiological data; routing consultations; guiding sick people on lengthy medication; aiding immunization and vector-control schemes; providing maternal basic health care; and promoting health education and preventive care are just a few of the tasks that CHWs can perform.

During the pandemic, community health professionals assisted with crisis communication and community involvement, early case detection, contact tracing, and referrals for testing and care continuity (CDC, 2021).

Kenya initiated the Community Health Strategy (CHS) in 2006 to accomplish the goals of the Second National Health Sector Strategic Plan (2005-2010), which targeted to alter worsening health indicator tendencies (MOH, 2020). Community health volunteers are what Kenyans call community health workers (CHWs). They provide services in geographically designated units known as community health units (CHUs). The CHU has about 5000 people (1000 households) and is served by 10 CHVs. Community Health Assistants (CHAs) supervise CHVs, who are public employees tasked with providing health services at the household and community levels as well as making referrals and connections to health facilities (*Kenya's Community Health Volunteer Program*, 2020). According to records from the Kenya Health Information System (KHIS), Machakos County has 196 community health units with a catchment population of 5000 each, served by 1960 CHVs.

1.2 Statement of the Problem

The COVID-19 pandemic presents a clear threat to health services and systems across the globe. As countries, world over, ramp up efforts to curb the COVID-19 pandemic, the magnitude of the impact the pandemic has had, and still has, on health services and systems is beginning to unfold (Razu *et al.*, 2021). There is strong evidence that the COVID-19 pandemic has significantly contributed to the disruption of healthcare services including the delivery of routine and essential healthcare services that are offered by the CHVs (Bezbaruah *et al.,* 2021). Several empirical studies have investigated challenges and opportunities in the delivery of primary health services by community health workers including DeRenzi *et al.* (2017) in India; Jerome and Ivers (2010) in Haiti; *et al.* (2017) in South Africa; Brunie *et al.* (2014) and Kuule *et al.* (2017) in Uganda and Aseyo *et al.* (2018) in Kenya. These reviews were however undertaken in the pre-COVID-19 pandemic era. Locally, there was dearth of empirical investigations on enablers and challenges encountered by community health volunteers and their performance during the COVID 19 pandemic, yet CHVs played an instrumental role in the delivery of basic healthcare services in the country. Consequently, this study sought to identify the enablers and challenges on performance of community health volunteers during the covid 19 pandemic in Machakos County, Kenya.

1.3 Study Justification

Community health volunteers are essential in responding to current and future pandemics. It is essential to assure role precision, training, and reassuring supervision, along with job satisfaction and general wellbeing of the CHVs. The CHVs structure's execution in Kenya has been marred

by lingering queries about lengthy practicality and impact on project success. Notwithstanding the extensive encounter with CHWs, comparatively slight scientific confirmation exists to respond to fundamental queries, most noticeably the enablers and challenges faced by CHVs through the COVID-19 pandemic. The World Health Organization points out that it is imperative to acknowledge the position of community health workers and integrate them in reaction to health emergencies (WHO, 2019).

In an effort to aid in ensuring disaster preplanning it is vital to comprehend the resilience and responsiveness of the healthcare system (Wiig and O'Hara, 2021). Therefore, there is a necessity for more investigation on CHWs in pandemics (Bhaumik *et al.*, 2020). The COVID-19 unclear trend line has resulted in substantial challenges for healthcare providers (Lusambili *et al.*, 2021; Ness *et al.*, 2021; Razu *et al.*, 2021). Due to the vital part of these health care providers in pandemic reaction, the purpose of this research was to achieve enhanced grasp of the challenges of CHVs during the COVID-19 period as well as the enablers and their performance during the pandemic.

1.4 Research Questions

1) What were the enablers of CHVs during the COVID-19 pandemic?

2) What were the challenges experienced by CHVs during the COVID-19 pandemic?

3) How was the performance of CHVs during the COVID-19 pandemic in Machakos?

1.5 Study Objectives

1.5.1 Broad Objective

To assess the enablers and challenges on performance of CHVs in Machakos County during the COVID-19 pandemic

1.5.2 Specific Objectives

1) To determine the enablers of CHVs during the COVID-19 pandemic.

2) To explore the challenges experienced by CHVs during the COVID-19 pandemic.

3) To assess the performance of CHVs during the COVID-19 pandemic in Machakos.

1.6 Significance of the Study

The outcomes of the investigation may be used to inform a review of the community strategy rollout in the study region. The Machakos County Health Management Team (CHMT) may be enlightened on the difficulties affecting the execution of the community strategy. This could warrant the team to sort out these concerns and maybe execute a community-beneficial plan. The outcomes of the study may aid authorities and other actors in developing better methods to improve community strategy. This would push the county and country closer to realizing high-quality health care as intended by the public, as well as SDG 3 of guaranteeing healthy lives and fostering welfare for all people of all ages. Understanding the challenges CHVs faced during the COVID 19 pandemic may help them create resilience to cope with future pandemics. Understanding the enablers of CHVs in their performance would serve as a model for other

counties looking to improve their community studies in those areas. Researchers interested in this topic could find the findings of this study to be invaluable reference information.

1.7 Conceptual Framework

1.7.1 Independent Variables

The independent variables of this study were the socio-demographics, enablers and challenges of CHVs during the COVID-19 pandemic.

The measures of the socio-demographics variable included gender which was assessed through determining the proportion of the CHVs that were male vis-a-vis female; age which was assessed through determining the proportion of the CHVs aged 35 years and below versus those aged above 35 years; education level which was assessed through determining the proportion of the CHVs with tertiary education versus those with secondary or lower education and marital status which was assessed through determining the proportion of the CHVs that were married versus those not married.

The challenges variable was assessed through number of CHVS offered of on-job training, number of CHVs that received supportive supervision, the volume of assigned work responsibilities to the CHVs, number of CHVs that had difficulties in transport during community health related work each month, number of CHVs reporting cases of drugs stock outs and/or lack of appropriate equipment.

The enablers variable was assessed through the number of CHVs that reported support in community resources (financial and otherwise), number of CHVs accessing priority health care, number of CHVs in social support groups, number of CHVs that reported compensation for their work and the frequency of the compensation.

1.7.2 Intervening Variable

The intervening variable for the study was the CHVs' individual family responsibility. This was adopted to recognize the influence that CHVs' personal family responsibilities had on their ability to effectively perform their community health related tasks/roles. It was assessed through the number of times the CHVs failed to attend to their community health work related responsibilities due to personal family matters.

1.7.3 Dependent Variable

The performance of the community health volunteers was the study's dependent variable. It was assessed through the total number of households attended to, the total number of health education sessions held, the number of clients referred and the number of community health Barazas addressed. The researcher also reviewed the data from KHIS to compare the work output in the years 2019, 2020 and 2021.

1.7.4 Outcome Variable

The outcome variable of the study would be two-fold. Improved or high work output of community health volunteers where the enablers are enhanced and the challenges addressed and

reduced or low work output of the CHVs where the challenges remain unaddressed and the enablers are not emphasized. The conceptual framework appears as shown in Figure 1.1.

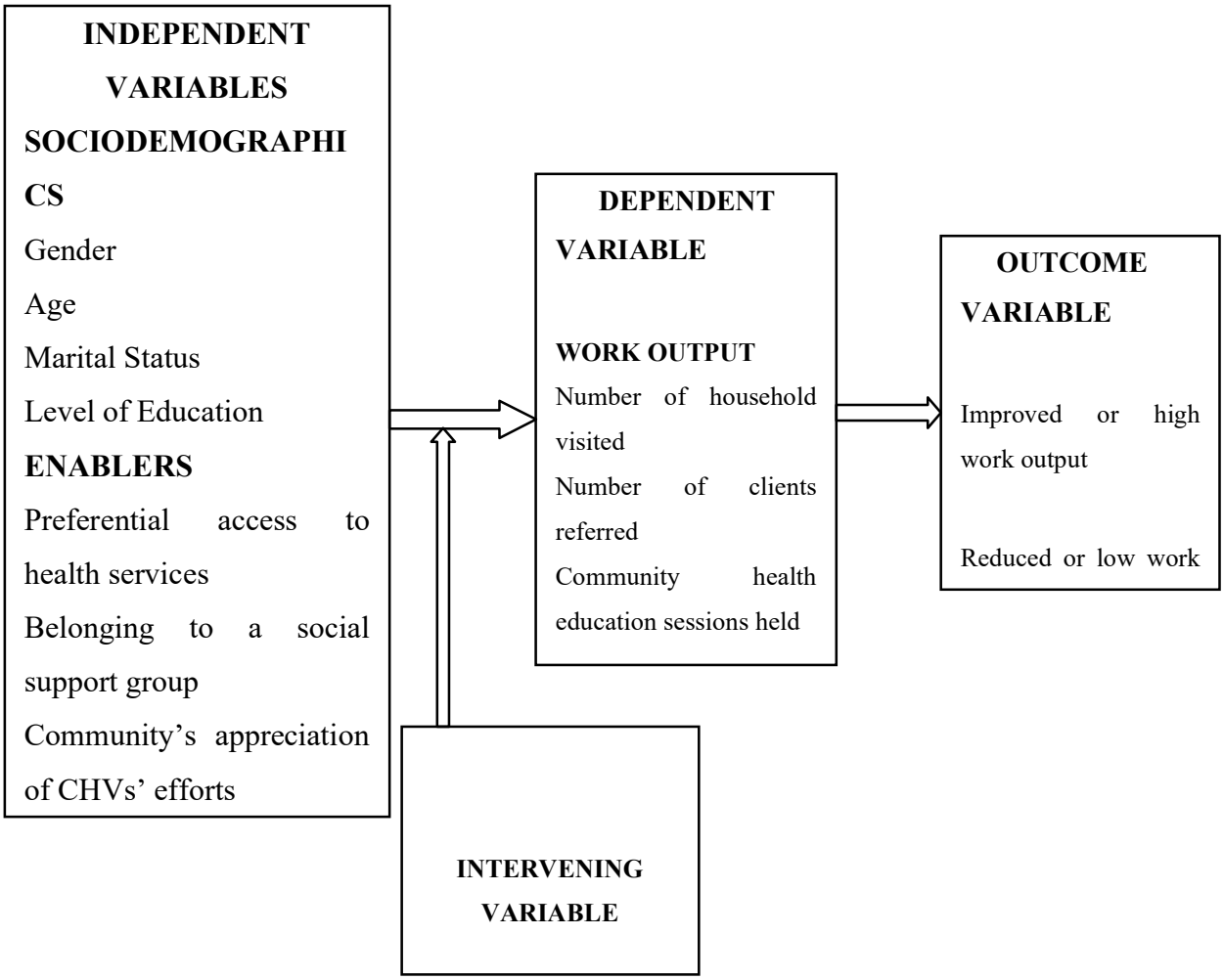

Figure 2.1: Conceptual framework

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This segment discusses the literature on purpose of the study, as well as the impact of demographic factors on CHVs work output, the roles of CHVs in the referral system of COVID 19 patients and enablers and challenges of CHVs in their work analyzed intending to become acquainted with the frame of literature and find out the difference on which the study was based.

2.1 Community Health Workers Concept and Practice

Interventions in developing countries that aim to maximize the role of unconventional health workers purpose to narrow the gap among community members, caregivers, and the institutional healthcare structure. Since the Alma Ata summit in 1978, when the Primary Health Care approach was created, volunteer health workforces or community health workers have been presented and recognized as the third working population under the 'Human resources for Health' umbrella (Vareilles *et al.*, 2015).

In the 1980s, CHWs were launched to deliver PHC in distant and inaccessible areas of the world, and they are still doing so today (Guilbert, 2006). The CHWs have advanced in tandem with the community-based healthcare program, and the PHC strategy has aided them. However, due to variances in goals and economic capacity, the concept and practice of CHWs have differed widely among countries (Ivang and Etienne, 2021).

Kenya launched its primary Community Health Policy 2020–2030, as well as the Primary Health Care Strategic Framework 2019–2024, in July 2020, in an occasion organized by the Minister for

Health, in acknowledgment of the essential task that CHVs perform in rendering primary health care services. The policy's main objectives are to guide the development and implementation of a robust, complete, incorporated, equitable, holistic, and long-term community health system in Kenya. The policy creates a legislative structure to support the adoption and accomplishment of 100 percent coverage with community units, as well as county recognition of community health staff. Community health worker recruitment, remuneration, training, and deployment, as well as an improved community health information system, are all addressed in this strategy (Hussein *et al.*, 2021).

2.2 Socio-Demographic Characteristics of Community Health Workers

Various fundamental qualities of CHWs, such as their age, gender, ethnicity and even economic level influence how they are seen by community affiliates and their experiences in their work, affecting their motivation and retention. The titles, demographic profiles, and deployment of CHWs, on the other hand, have varied greatly across countries.

Studies on whether social-demographic factors are key predictors of CHW efficacy have also varied. Appreciating how socio-demographic characteristics influence CHW success in achieving their objectives is critical, especially to encourage the use of evidence-based tier one health care services.

Different studies that were reviewed used different age brackets in their selection criterion for CHWs who participated in their studies. Women between the ages of 21 and 55 were recruited in an Indian study (DeRenzi *et al.*, 2017). According to findings of a research conducted in rural Rwanda, community health professionals aged 35 to 42 years old made up less than 30.6 percent

of the participants (Mwendwa 2018). In a Kenyan research Ndedda *et al.* (2012) presented that over half of the community health workforces sampled had between ages of 25 and 40. In addition, the majority of CHWs had received some training. According to one Indian researcher, the majority of CHWs had completed grade 10, with only around a quarter having never attended school (DeRenzi *et al.*, 2017). In a recent study in Kisumu, Kenya, about 60 percent of the total of the CHWs had earned at least a secondary level education (Aseyo *et al.*, 2018). In another Kenyan study, Ndedda *et al.*, (2012) found that half of the people in the study had gone to a formal school for more than 7 years. Over three-quarters of them were married. Most of the CHWs from the literature reviewed are female. Research conducted in Kenya, Ndedda *et al.*, (2012) poses that over half of the community health personnel sampled were females aged 25 to 40. They had completed their high school education, were married, and had worked as CHWs for several years. In a separate study in Kenya, two-thirds of the CHWs sampled were 12 women under the age of 70 who had at least an elementary education degree (Taylor *et al.*, 2018). In a South African analysis, the entire sample of 53 CHWs was made up of females who had served for a mean of 7 years (Lister, White and Govender, 2017). In another survey conducted in Kisumu, Kenya, approximately less than three-quarters of the survey participants were women over the age of 24 but under the age of 58, with a range of years of service.

The ability to withstand community health professionals was associated with a high level of education and lengthy service, but not to their age, when it came to the effects of these sociodemographic factors (Opimbi 2021). Projects involving both male and female CHWs were more conceivable and gainful than any of those involving only one gender (Rabadi et al., 2016). Findings of a study carried out in Vihiga, Western Kenya also established that a higher level of

education had a positive effect on the performance of CHWs (Njororai *et al.*, 2021). These findings however differ with the findings of a Kenyan study (Opimbi 2021) where education and gender did not have a significant impact on CHWs work, however advancing age affected the coping ability of CHWs negatively.

2.3 Enablers of Community Health Workers

The valuation of a large degree of social gratitude for their job was roughly equivalent to having received a monthly transport allowance of 2000 Kenya Shillings (US $20). Such motivators were regarded far beyond staff appreciation or six-month training. This study shows that having invested in plans to strengthen community members' understanding of CHWs' contributions to community health can involve a massive effect on CHW retention and motivation (Indrani *et al.*, 2019).

Non-monetary motivators for front-line caregivers and CHWs also provide preferential admittance to health care services at a reduced (or no) cost to the working person and presumably his or her kin, career development chances, persistent education, mentoring programs, and performance reviews, sufficient supply of supplies and necessary equipment, acknowledgement of exemplary work, and providing of noticeable examples of a CHW's special position (Asweto *et al.*, 2016).

According to a Ugandan study, the count of refresher coaching attended and a quantity of families overseen by a CHV are strongly related to several of their deliverables and overall quality of work (Kuule *et al.*, 2017).

2.3.1 Community Health Workers' Access to Resources

2.3.1.1 Personal Resources for CHWs

Activism, communication, interpersonal, promotion of health, and organizational skills were required of community health personnel in the United States (Rosenthal and Fox, 2017). They were capable of interacting more effectively with their clientele, enlightening them, championing their wants, as well as providing primary health care services as a result of this. Self-confidence is an indispensable asset for CHWs. Community health workers in Bangladesh and Mozambique who had been sponsored, respected, and recognized had a strong sense of self. Equally, they developed to be more consistent and self-satisfied (Kok *et al.*, 2017). Likewise, competency increased the self-confidence and assertiveness of CHWs in Western Kenya, allowing them to own the interventions and, as a result, adapt positively with their working life (Kaseje, 2015).

2.3.1.2 Organizational Resources for CHWs

Organizational resources such as cohesiveness and communication skills were critical for the preservation of community health personnel in Bangladesh and Mozambique programs (Kok *et al.*, 2017). Community health workers in Kenya frequently collaborated with faith-based or community-based organizations. They contributed in assisting vulnerable children in this location, which was their distinguishing feature (Shihundu *et al.*, 2019).

2.3.1.3 Community Resources

The program's viability was guaranteed since trust was built through communal participation in community health personnel programs. CHW activities in Ethiopian communities were

supported by traditional local community groups such as female ones, youngsters, and faith-based groups (Perry *et al.*, 2017). Both Community Health Workers and their clients received psychological, socio-cultural, and substance support from the community. As a result, social benefits were critical to the effective delivery of their services (Shihundu et al., 2019).

2.4 Challenges facing Community Health Workers

The ability of community health workers to deal with the obstacles they faced on the ground was critical to their programs' long-term viability. Consequently, it was contingent on their education, volume of work, administrative support, and consistent financing (Boakye *et al.*, 2018). CHWs retention has been challenging in most nations, and substantial turnover has been recorded in many contexts due to the problems they confront. These difficulties have had a substantial negative impression on the availability of community health care (Lusambili *et al.*, 2021). Due to the multiple problems faced, CHW programs in rural Kenya provided low-quality services (Aridi *et al.*, 2014). Funding, access to evidence-based therapies, and accreditation were all policy hurdles. Recruitment and high turnover were two organizational hurdles, as were inter-organizational referral mechanisms and management (Rahman *et al.*, 2021).

New challenges arose in India following the COVID-19 pandemic, including absence of family aid, strain, and despair of getting infected with COVID-19; institutional obstacles such as infrastructure flaws and insufficient personal safeguards; and community-related hurdles like stigma, opposition, and an absence of community support, all of which hampered CHWs' ability to provide services (Mishra *et al.*, 2022). These findings match those of a review of case studies

from Bangladesh and Thailand, where there was stigma, an absence of appropriate coaching or safety gear, and a lack of incentives and acknowledgement (Bezbaruah *et al.*, 2021).

2.4.1 The Challenge of Unhelpful Supervision to Community Health Workers

The Community Health Workers guidance in Philippines stayed unfulfilling, if at all, and was frequently performed by their contemporaries. It was primarily a one-time probe in Mozambique, with no constructive input (Hill *et al.*, 2014; Ndima *et al.*, 2015). In Malawi the overseeing of community health workers was regarded as unsupportive because it centered on finding mistakes. This was attributable to a shortage of resources, which made supervisory training tough (Bradley *et al.*, 2013), disheartened CHWs and consequently made coping incredibly hard (Jaskiewicz and Tulenko, 2012).Supervision does, in fact, improve the standard of work done by community health workers. For example, in Kenya, oversight enhanced their accounts (Oliver *et al.*, 2015). Community health workers face a significant obstacle in their work performance due to a lack of regular communication with supervisors (Kambarami *et al.*, 2016).

2.4.2 The Training of Community Health Workers' challenge

On-the-job training was crucial in developing Community Health Workers' comprehension and competency for that particular intervention, according to Community Health Workers in Iran; nonetheless, some of them desired inceptive training. This was due to the fact that the standard of the former was lower, short-lived, and had just a few trained trainers (Javanparast *et al.*, 2012). CHWs in India were given a brief induction accompanied by peer training, putting them at a disadvantage (Sharma, Webster and Bhattacharyya, 2014).Competence-based coaching was used in CHW programs in Bangladesh, Indonesia, and Mozambique for specific intervention tasks.

Practice exercises as well as on training supplemented these (Kane *et al.*, 2016). According to a South African study (Sibeko *et al*., 2018) a psychic training program was completed by 97 percent of the community health workers, which improved their understanding, self-esteem, attitude shift, and goodwill. But then again, in a previous study (White, Govender and Lister, 2017), seven percent of CHWs in South Africa rated their training as underwhelming since it did not yet provide them with the competences, they needed to fulfill their role. Community health worker training programs in Kenya only proffered solitary and capacity-building initiatives that depended on funding available and were centered on the developer's presumptions (Kaseje, 2015). Furthermore, the training was unregistered and conducted haphazardly, with contradictory subject matter, delivery mechanism, and timeframe. In one case investigation, (Oliver *et al.*, 2015), the caliber of community health worker coaching varied conferring to time interval and instructor. It was more concerned with fictional scenario issues than with real issues. Nonetheless, on-the-job coaching, ongoing training, and/or refresher courses were provided, which increased their successfulness, despite the fact that they were sometimes done aimlessly. The results are in accordance with a Ugandan study (Musoke *et al.*, 2021) where it was discovered that the training of CHWs helped to solidify the community health strategy.

2.4.3 The Challenge of Managing High Volume of Work for Community Health Workers

The volume of work of CHWs determines the quality of their output. The count and institution of duties, as well as the territory to be served, determine workload. The catchment area includes both the proportion of homes covered and their arrangement pattern. All of this had to be considered in order to guarantee a reasonable workflow appropriation for CHWs (Jaskiewicz and Tulenko, 2012). As Singh and Sachs (2013) points out, the productivity of Sub-Saharan African

community health workers (CHWs) was hampered by a heavy workload. The ratio of CHWs to the population was seven times higher than the average. New initiatives in Sub-Saharan Africa had a Community Health Workers -to-population ratio of 1:2400, which was unacceptably high (Gichaga *et al.*, 2021). However, community health personnel required a bearable volume of work, which included a rational number of roles, lesser population, and a short mileage to commute. Such a situation was never actualized (Jaskiewicz and Tulenko, 2012). Because they were unable to cope with the increased workload, they became demoralized and underperformed (Gleynton, Javadi and Perry, 2021). Furthermore, a heavy workload has contributed to mental distress among CHWs (Lopes *et al.*, 2019)

Oversight of more than the suggested percentage of homes was linked to poor achievement. Only nearly half of the CHVs did serve the proposed proportion of homes, with the majority of the remainder serving a higher number (Kuule *et al.*, 2017). Mixed research administered in India to investigate the workload of community health workers revealed that CHWs struggled to poise their important CHWs efforts and domestic responsibilities (Kawade *et al.*, 2021).

2.4.4 The Challenge of Community Health Workers' Transportation

Transportation was a problem faced in rural Haiti by the community health workers. Because people resided in remote locations where roads were dangerous and inaccessible secondary to inclement, weather and poor landscape, they relied on livestock and rafts (Jerome and Ivers, 2010). Communities residing in the rural areas of Sao Paulo had to pass through fences to access their homesteads that were dispersed (Baptistini and Figueiredo, 2014). Malawian, Rwandese and Ethiopian community health workers were unable to perform their duties due to a lack of

gumboots and umbrellas (Chandani *et al.*, 2014). Those in Uganda, on the other hand, had limited access to transportation as well as insufficient transportation refunds, forcing them to hire a 'bodaboda', which was expensive (Brunie *et al.*, 2014). The problem of transportation was a recurring issue for the Kenyan community health workers. They trekked, managed to carry patients on stretchers, and made do with what they had and occasionally paid fares. As a result, they had limited referral work. They sometimes utilized truckloads loaded with mats, dubbed "community ambulances," to transport patients to the health center. Their task is significantly complicated by such matters (Oliver *et al.*, 2015). Only about a quarter of the CHWs in Kisumu used two - wheelers or bikes to move around (Aseyo *et al.*, 2018).

2.4.5 The Challenge of Stock Outs

Jaskiewicz and Tulenko (2012) argued that if supplies and equipment were not replenished on a regular basis, CHWs would be rendered unproductive since they would have ended up losing the support and loyalty of the community. Those in South Africa expressed dissatisfaction with the inconsistency and scarcity of masks and gloves, making their jobs more challenging (White, Govender and Lister, 2017). The inconsistency of stock supply in Uganda made it tough for them to finish their work (Brunie *et al.*, 2014). Significant challenges were faced in Kenya due to a lack of materials to deal with on-the-ground obstacles (Oliver *et al.*, 2015). This was especially true for those involved in programs sponsored by Non-Governmental Organizations (NGOs). Kisumu CHWs were hampered by a lack of job items including gloves, rubber boots, and first aid kits, limiting their capability to act in homes, limiting their opportunities to provide health care, and putting them in danger. As a result, their ability to cope was harmed, as were their relationships with the societies they did serve (Aseyo *et al*., 2018).

2.4.6 The Challenge of Inadequate Financing

The initiatives that depended on community health workers had insufficient and uncertain financing, thus accelerating dropout because they were unhappy with their recompense in comparison to the time consumed. The same case applied to Nepalese CHWs, who were paid pitiful wages (Glenton, Javadi and Perry, 2021). In the United States, however, fair wages were required for CHWs to guarantee the integrity of their sustenance and dedication (Watt 2011). Given the absence of governmental prioritizing, the existence of unconstructive policies and initiatives, and a poor benefactor funding structure, CHW programs in Sub-Saharan Africa were underfunded (Gichaga *et al.*, 2021). The hurdles of material shortages, transportation, non - supportive oversight, and insufficient training for Kenyan community health workers were all caused by the problem of constrained and undependable financing (Oliver *et al.*, 2015). In Kisumu, CHWs never got a government stipend, but they did earn some allowance from non-governmental entities. The stipend was very small, and it was sometimes late, making it difficult for them to cope with their work in the absence of government support (Aseyo *et al*., 2018).

2.5 Work Output of Community Health Workers

Existing empirical evidence suggests that the work output of community health workers/volunteers was significantly affected by the COVID-19 pandemic with some studies reporting reduced CHV's work output during the pandemic while others reported increased work output among the community health volunteers.

For instance, in a review of the role of community health workers in responding to the COVID-19 pandemic, Bhaumik *et al.* (2020) noted that the work output of CHWs rapidly increased

during the COVID-19 pandemic as they were not only performing their routine functions of delivering basic health care services to communities but also became part of the healthcare workforce responding to the pandemic through activities such as issuance of COVID-19 vaccines and contact tracing. Similar sentiments were shared by Razu *et al.* (2021) who in a review of the work of community healthcare workers during the COVID-19 pandemic in Bangladesh reported that the work output of CHWs had significantly increased on the emergence of COVID-19 pandemic in the country. They reported that CHVs were instrumental in continuance of delivery of primary health services as well as in scaling COVID-19 counter measures at local community levels.

In contrast, studies by Rahman *et al.* (2021) and Mishra *et al.* (2022) reported a decline in the work output of community health workers largely due to mobility and work-related restrictions imposed as part of COVID-19 containment measures in the various countries. The studies reported that a significant reduction in delivery of basic health care services at community levels was experienced as community health workers were unable to continue working normally due to various restrictions imposed by the authorities as part of reigning in on the spread of the COVID-19 infections. Similar observations on reductions in the work output of CHWs during the COVID-19 pandemic were reported by Opimbi (2021) and Ness *et al.* (2021), and which they blamed on imposed movement and work restrictions that formed part of COVID-19 control measures.

Findings from 3 key case studies reviewed showed that CHWs in Southeast Asia have increased their duties to satisfy the demands for both routine healthcare and COVID-19 countermeasures. During the responding, a CHW's routine function in health promotion designed to raise

knowledge and promoting "new normal" behaviors; CHWs also assisted in monitoring and contact tracing, as well as making sure that people abided by isolation and containment regulations (Bezbaruah *et al.*, 2021). CHWs are also crucial in the distribution of COVID vaccines (CDC, 2021).

2.6 Summary of Literature Review

The experiences of CHWs have been marked by numerous challenges and a scarcity of enablers. The most common challenges faced by CHWs in their roles were inefficient training, unsupportive supervision, unmanageable workload, transportation constraints, erratic restocking of supplies, and unreliable funding. Good wages and incentives were presumed to be enablers because they motivated CHWs and enhanced their performance. Furthermore, the effectiveness and long-term viability of CHW programs were dependent on personal, institutional, and support systems. The COVID-19 pandemic created new challenges for CHWs, such as absence of family livelihood, anxiety, and distress of getting infected with COVID-19; facility-level tasks, such as transportation issues and insufficient individual precautionary equipment; and community-level challenges, such as stigma, antagonism and absence of community support, all hampered CHWs' ability to provide services.

There was little evidence available about the encounters of CHWs during the pandemic. The few studies that had been published had been conducted in other areas. There were few if any in the East African region. This research sought to determine the enablers and challenges faced by community health workers.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This section defines the approaches applied in this research investigation. This encompasses the study's design, study area, target population, sampling techniques, sample size determination, data collection tools and techniques to be used, measurement of variables, and ethical and logistical aspects.

3.2 Study Design

A mixed methods research design was utilized in this study as the study utilized both quantitative and qualitative data. The quantitative data was obtained using the questionnaires as well as via a desktop review of Kenya Health Information System (KHIS) records undertaken to collect data on the CHVs' work output. The qualitative data was obtained from both the questionnaires and focused group discussions (FGDs). The two data components were executed sequentially starting with the collection of the quantitative data and then followed by collection of the qualitative data. As observed by Creswell (2012), an approach of undertaking research that utilizes a mixed methods design implies that the study attempts to assess the research problem under review using both quantitative and qualitative data and research techniques. Hence, this research design was considered appropriate for this study as it allowed the researcher to enrich the quantitative data on the study subject with qualitative data hence deriving a more in-depth view of the study subject (Kothari, 2010).

3.3 Study Location

This research was executed in Machakos County, which is situated in the former Eastern province. It is bounded on the west by Nairobi and Kiambu Counties, on the north by Embu County, on the east by Kitui County, on the south by Makueni County and on the south west by Kajiado County, and on the north west by Murang'a and Kirinyaga. The County has 9 Sub Counties namely; Machakos township, Mavoko, Kathiani, Masinga, Yatta, Matungulu, Mwala, Kangundo and Kalama. The county had a population of 1,421,932 in 2019. There are 1960 community health workers (CHVs) in Machakos County (KHIS)

3.4 Target Population

The study targeted all the 1960 Community Health Volunteers.

Table 3.1: Population size distribution

SUB COUNTY	Community Health Units	CHVs
Athi river	10	100
Kalama	16	160
Kangundo	19	190
Kathiani	21	210
Machakos	23	230
Masinga	35	350
Mwala	20	200
Yatta	28	280
Matungulu	24	240

Source: KHIS

3.4.1 Inclusion Criteria

The study focused on Community Health Volunteers (CHVs), who were already working during the outbreak of COVID 19 and who agreed to participate in the study.

3.4.2 Exclusion Criteria

The study excluded community Health Volunteers (CHVs) who were on leave or away from work for reasons like training or being unwell. Further, CHVs who had served for less than one year and had not been inducted to the CHV training were also excluded.

3.5 Sampling Techniques and Sample Size Determination

3.5.1 Sample Size

Four (4) sub-counties (Machakos township, Athi river, Masinga and Yatta) were purposively sampled. Two of these comprised the urban population and the other two sub-counties comprised the rural population. The two urban sub counties also had the highest number of reported COVID 19 cases. The 4 sub counties had a total of 960 CHVs, 10 in each of the 96 CHUs.

The sample size was calculated using Yamane's (1996:886) formula for determining sample size. A 95% confidence level and p = 0.5 were assumed in this formula:

$n = N \div (1 + Ne2)$

N= Population size

e = Level of precision

960 ÷ (1+960*(0.05^2)

= 282 persons

3.5.2 Proportionate Sampling

Proportionate sampling was used from the sampling frame (Table 3.2) to select the needed number of respondents from each sub-county. Using Yamane's formula Adam (2020) for sample size intentness, the sample size for this research was determined to stand at 282. This was dispersed proportionally by calculating the figure of CHVs in each sub county relating to the total sample, i.e. (number of CHVs in a 960) 282. In this case, 960 was the population of CHVs in the four sub counties that were purposefully sampled, and 282 was the sample size. Because the sample was drawn from four sub counties with varying numbers of CHVs, the proportionate sampling technique was deemed feasible for this study.

Table 3.2: Proportionate sampling

Sub county	CHUs	CHVs	Sample proportion
Athi river	10	100	100/960*282=29
Machakos	23	230	230/960*282=68
Masinga	35	350	350/960*282=103
Yatta	28	280	280/960*282=82
TOTAL	96	960	282

3.6 Research Instruments

The data collection instruments for this study were a semi-structured questionnaire consisting of questions based on the research objectives, and a focus group discussion (FGD) guide consisting of open-ended questions on enablers and challenges experienced by the CHVs during the COVID-19 pandemic. The two study tools were interviewer-administered. The questionnaire contained questions based on the objectives of the research study. It is structured into 4 parts. Section A contained questions on the respondents' socio-demographic characteristics. Section B contained questions on the work output of the community health volunteers during the COVID-19 pandemic. Section C contained questions on the challenges faced by CHVs during the COVID 19 pandemic while Section D contained questions on the enablers of CHVs during the COVID 19 pandemic.

On its part, the FGD guide contained open-ended questions based on the study objectives. The FGD guide sought to gather the opinions of the study participants regarding the enablers and challenges they faced during the COVID 19 pandemic. It provided the study's qualitative data whose purpose was to complement the data gathered through the questionnaires. It allowed the researcher to probe in a more in-depth way the enablers and challenges faced by community health volunteers during the COVID 19 pandemic. This way, it helped enrich the study's quantitative data. The FGD interviews were audio-taped and were conducted among CHVs who did not participate in the main survey.

The community health volunteers' work output was collected in the MOH 515: Community health monthly summary report - a data tool within the KHIS. Therefore, the researcher reviewed

the MoH 515 data tool from the KHIS to assess the trends of work output reported by CHVs in the years 2019, 2020 and 2021.

3.7 Pretest of the Tools

The tools were pre-tested among CHVs working in community health units in Mwala sub-county of Machakos County. The pretest put the research instruments to the test to see if the questions questioned and observations completed were beneficial in accomplishing the study's intentions, following that, the tools were evaluated.

3.7.1 Validity

The degree to which an instrument measures what it is designed to measure (Kothari, 2010) or whether the conclusions gained from data analysis represent the phenomena under research is referred to as validity (Denscombe, 2014). The study tools were made available to the supervising lecturers, who assisted in establishing their content and verifying that their content/material was representative of the study subject.

3.7.2 Reliability

Reliability is the ability of a research instrument to produce consistent findings on repeated trials (Nsubuga, 2006). Reliability of the study tool was evaluated using the test-retest procedure with appropriate changes effected on the research tool following the pre-test to improve on its reliability.

3.8 Data Collection Procedures

To recruit the study participants, the researcher following relevant authorization from relevant bodies including the ethical committee of University of Nairobi, acquiring a research permit from NACOSTI and being granted permission to undertake data collection by the county government of Machakos, approached the targeted respondents during their regular report filing visits in their designated community health units. The researcher utilized the short encounters to introduce herself, inform the targeted respondents about the study's purpose; emphasize on the selection criteria, outline the consenting procedures for the study and organize with them on place and time when they could participate in the study through responding to the study questionnaire and participating in the focus group discussions. The consenting procedure entailed the respondents providing their informed consent in writing prior to participation in the study. The considerations of the consenting environment included respondents' voluntary participation, respect for the dignity and autonomy of the respondents, ensuring confidentiality of any information provided and ensuring that the respondents felt at ease during the data collection exercise.

To collect quantitative information on the research subject from the CHVs, the principal researcher with the help of the research assistants administered a structured interview questionnaire on the respondents. This was by allowing them to respond to the queries as contained in the questionnaire with the respondents' responses being noted down by the data collecting team. To gather data on the respondents' work output, a desktop review of the data reported by the CHVs in the KHIS from January 2019 to December 2021 was conducted. The

principal researcher therefore reviewed the county's MOH 515 which was the community health monthly summary report.

Qualitative data on the CHVs' challenges as well as enablers during the Covid-19 pandemic were collected through administration of a structured focus group discussion guide. One FGD was made up of a group of 6-12 CHVs. A moderator (the researcher), one observer (a public health officer), and a note-taker (research assistant) facilitated each FGD. To allow for greater freedom of expression, the FGD was held in a private setting. For homogeneity, the selection took gender, age, experience, and level of education into account. To maintain the quality of data captured we used audio recordings and note taking. We used a digital voice recorder to capture the information. We also allowed revocations in an event where a member changed their mind. The moderator guided the participants through the discussion and also observed group dynamics to ensure everyone participated. The research assistant captured what was said, noting down the tone of discussion. She noted all non-verbal or facial expressions. The notes were also useful during transcribing of the audio interviews to ensure the data was matched correctly. Every CHV in the group was involved to ensure maximum participation. The FGD interviews lasted for approximately 30 to 45 minutes. Ministry of Health's Covid 19 prevention and control guidelines were observed including social distancing 1.5m a part, proper wearing of face mask and hand hygiene during the data collection process. The data collection exercise took approximately four weeks.

3.9 Data Analysis

Data was entered and cleaned in Excel then the researcher proceeded to analyze it with the Statistical Package for Social Sciences (SPSS version 25.0). Quantitative data derived from the questionnaires and the MoH 515 was analyzed through descriptive statistics in form of frequencies, percentages, means and standard deviations. Quantitative data study findings were presented in tables, graphs and charts, as appropriate.

The software program NVivo 12 Pro was used for the qualitative analysis process. Qualitative data emanating from the open ended questions in the questionnaires and FGDs with the study respondents was analyzed through thematic analysis. The thematic analysis followed the 6 steps described by Braun and Clarke (2006), for identifying, analyzing, and reporting themes within data. Codes were identified with an inductive approach. The six steps that were followed included (a) the interviews were transcribed verbatim and read several times for familiarization with the data. (b) Initial codes were then generated by the two research assistants independently of each other, to enhance the consistency and credibility of the coding. A coding comparison between the codes they generated was computed. (c) The codes were then collated into potential themes and a theme map was made to check that the themes work in relation to the coded extracts and the data set. (d) The themes were then reviewed and discussed until (e) definitions and names of appropriate themes were set and (f) the final report was produced. Qualitative data findings were presented verbatim.

3.10 Ethical Considerations

Ethical clearance and approval was sought from the University of Nairobi/Kenyatta National Hospital Ethical Research Committee (UoN/KNH-ERC). Approval was also sought from the Director, Medical Services in Machakos County. The research permit to conduct research was sought from NACOSTI. In order to partake in the research, community health volunteers had to provide their written informed consent. Those who agreed to partake in the study were interviewed. While reviewing relevant literature, collecting data, and writing the thesis, the research scientist adhered to the code of ethics. The researcher precisely stated the relevance and intention of the research to the participants. The data gathering tools were used in a secure setting. People surveyed were guaranteed complete confidentiality, and the information gathered was used solely for research purposes. Data was gathered anonymously and no name was put on the questionnaire.

3.11 Delimitations of the Study

Only volunteer Community Health Volunteer (CHVs) from Machakos County participated in this project. As a result, generalizing the findings from this study to other regions should be considered with care.

3.12 Limitations of the Study

The administration of the interview instrument took a significant amount of time. The study faced the difficulty of uncooperative participants, which was overcome by ensuring that the respondents appreciated the importance of their thoughts in improving their working conditions.

3.13 Assumptions of the Study

It was assumed that community health workers had different experiences at work that affected their work output. In addition, the participants were willing to cooperate and that their responses were genuine.

3.14 Dissemination of Findings

The findings were shared to the Machakos County Health Management Team to help understand how best to manage the community health strategy program. The results were also presented to the department of nursing at the University of Nairobi. The findings shall further be published in a peer reviewed journal for future reference. A hard and soft copy of the results shall be available at the University of Nairobi Library and at the Kenyatta National Hospital/ University of Nairobi-Ethics and Research Committee.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter presents the study results as set out in the research methodology. The results were presented on the enablers and challenges on performance of community health volunteers in Machakos County during the COVID-19 pandemic. The chapter begins with highlighting the response rate and then provides results of the study in line with the research objectives.

A response rate of 100% was attained as the researcher was able to obtain adequate responses from all of the 282 CHVs who constituted the study respondents. In addition, two focus group discussions were conducted among select CHVs (8 participants in Group 1 and 9 participants in Group 2), all of whom participated. These response rates were therefore considered sufficient and representative and conform to Mugenda and Mugenda (2003) stipulation that a response rate of 50% was adequate for analysis and reporting; a rate of 60% was good while a response rate of 70% and over was excellent.

4.2 Socio-Demographic Characteristics of the Respondents

The socio-demographic attributes considered were gender, age, marital status, education level and duration worked as a CHV.

Results in Table 4.1, indicate that most of the study participants were female (78%, n = 220); aged 30 years and above (83%, n = 234); were married (84.8%, n = 239); had basic education background (Primary Completed - 21.3%, n = 60; Secondary Incomplete - 26.2%, n = 74; Secondary Completed - 40.1%, n = 113) and had worked as CHVs for over 5 years (78%, n =

220). This denoted that the study participants were largely married female CHVs aged 40 years and above who had basic education background and had served as CHVs for over 5 years.

Similarly, majority of the FGDs participants were female CHVs, aged between 33 and 58 years, most of whom were also married and had basic education background.

Table 4.1: Socio-demographic characteristics of the respondents

		Frequency	Percent
Gender	Male	62	22.0
	Female	220	78.0
	Total	**282**	**100.0**
Age	20 - 29 years	5	1.8
	30 - 39 years	43	15.2
	40 - 49 years	112	39.7
	50 years and above	122	43.3
	Total	**282**	**100.0**
Marital status	Single	17	6.0
	Married	239	84.8
	Widowed/Separated/Divorced	26	9.2
	Total	**282**	**100.0**
Education level	Primary Incomplete	19	6.7
	Primary Completed	60	21.3
	Secondary Incomplete	74	26.2
	Secondary Completed	113	40.1
	Tertiary	16	5.7
	Total	**282**	**100.0**
Duration worked as a CHV	6 months or less	1	0.4
	1 - 5 years	61	21.6
	Over 5 years	220	78.0
	Total	**282**	**100.0**

4.3 Enablers of Community Health Volunteers during the COVID-19 Pandemic

The study explored the enablers of CHVs in Machakos County during the COVID-19 pandemic. The findings are as presented in the subsequent subsections.

4.3.1 Priority Access to Health Services as an Enabler

The respondents were requested to indicate whether they had priority access to health services. Majority (95.4%, n = 269) of the respondents indicated that they did not have priority access to health services (Figure 4.1). This denoted that the majority of the CHVs in Machakos County did not enjoy the privilege of priority access to health services. For the few that enjoyed having priority access to health services, they noted that they did not queue for services when they went to hospital, they got prioritized whenever they sought health care services and some reported to have personal insurance covers.

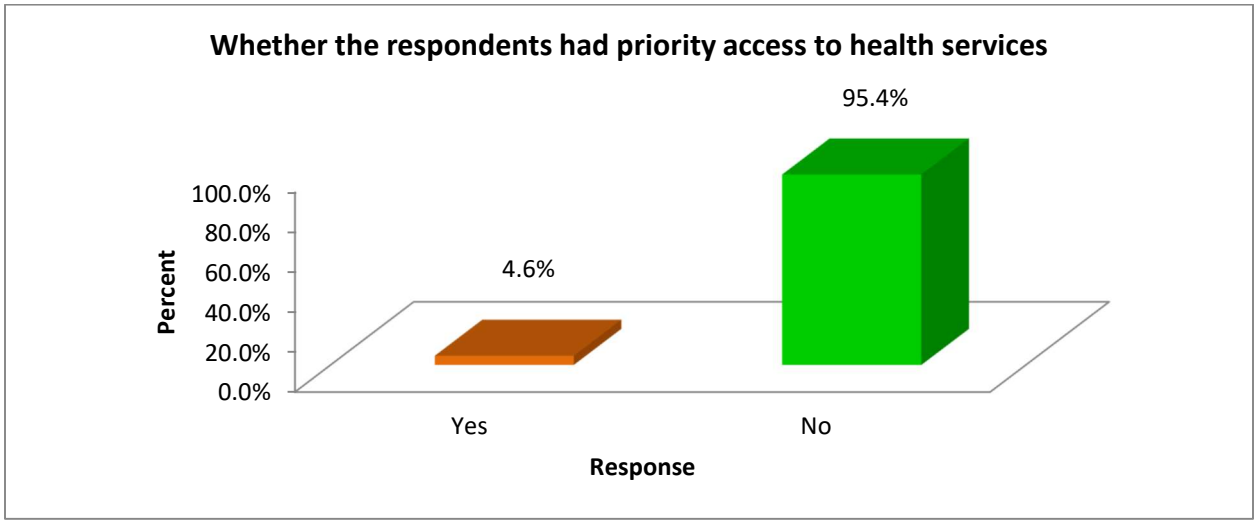

Figure 4.1: Whether the respondents had priority access to health services

4.3.2 Belonging to a Social Support Group as an Enabler

The respondents were queried on whether they belonged to a social support group in their community. From the findings, most (85.1%, n = 240) of the respondents indicated that they belonged to a social support group in their community, as shown in Figure 4.2. The social support groups that the CHVs belonged to included self-help groups and merry go rounds (22.3%, n = 63); welfare groups (16%, n = 45); table banking (43.3%, n = 122) and community-based organizations (3.5%, n = 10).

Further, for all the 240 CHVs that indicated as belonging to a social support group in their community, all (100%) did acknowledge that being in the social support group was helpful.

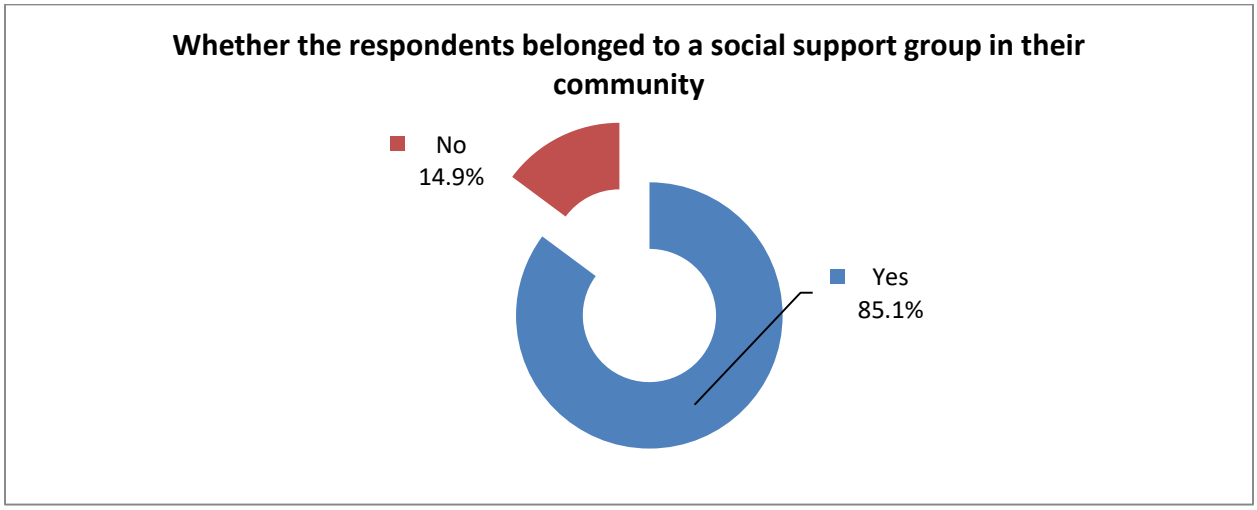

Figure 4.2: Whether the respondents belonged to a social support group

4.3.3 CHVs Efforts Appreciation by the Community as an Enabler

The respondents were asked whether they believed that the community appreciated their efforts. Almost all (99.3%, n = 280) of the respondents unanimously agreed that they did believe that

their communities appreciated their efforts. This was based on the observations that community members appreciated them and their work, community members consulted them on health matters, community members welcomed them to their homes and thanked them for their services and community members informed them of any cases that required the CHVs attention and that the community members were eager to learn from the CHVs and to follow the CHVs advice.

4.3.4 Social Support from the Community as an Enabler

The respondents were requested to indicate whether they received any social support from the community. Majority (88.7%, n = 250) of the respondents indicated that they did not receive any social support from the community. For the few that indicated that they received social support from the community, the social support from the community included community's support of the CHVs' work through being appreciative and cooperating with the CHVs, community members offering moral support in form of encouraging and comforting words and supporting the CHVs whenever the CHV had any personal or family related problems. Results are as shown in Figure 4.3.

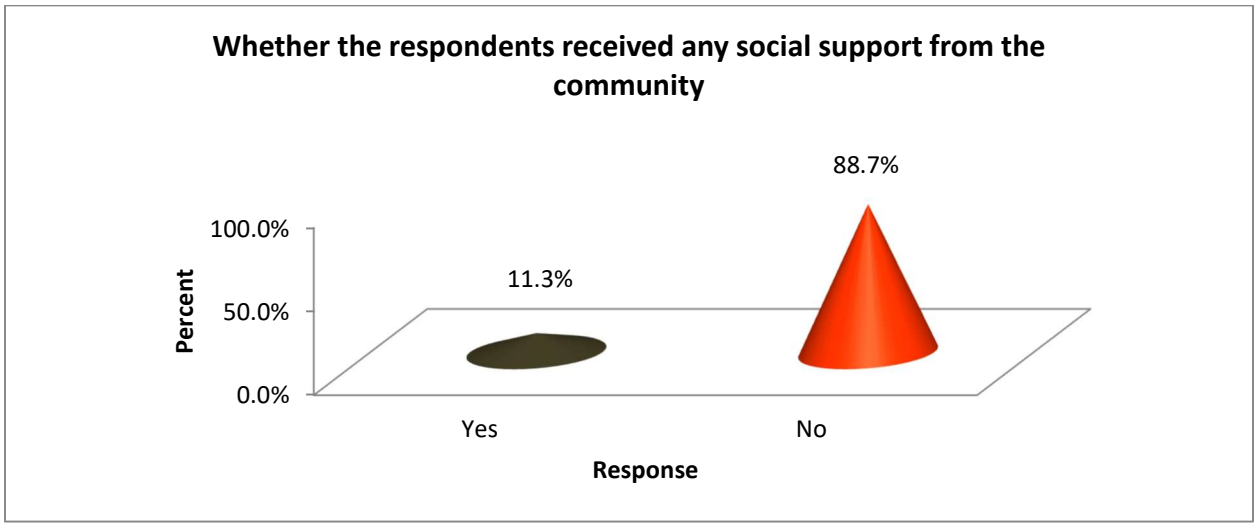

Figure 4.3: Whether the respondents received any social support from the community

4.3.5 Monetary Compensation for the CHV Role as an Enabler

The respondents were requested to indicate whether they received monetary compensation for their role. From the findings, almost all (97.2%, n = 274) of the respondents acknowledged that they did receive monetary compensation for their role. The respondents indicated that the monetary compensation was in the form of a stipend paid by the Machakos County Government. However, they all lamented that the stipend was very little and was delayed or irregularly paid.

4.3.6 Respondents Views as Shared through the FGDs

The respondents who participated in the focus group discussions were requested to cite their successes as CHVs in their roles during the COVID-19 pandemic. Three major themes emerged from the discussions. These were awareness creation on COVID-19 protocols among their communities; demystifying the COVID-19 vaccine and mobilizing its uptake and linkage of patients with health facilities, as illustrated in Figure 4.4.

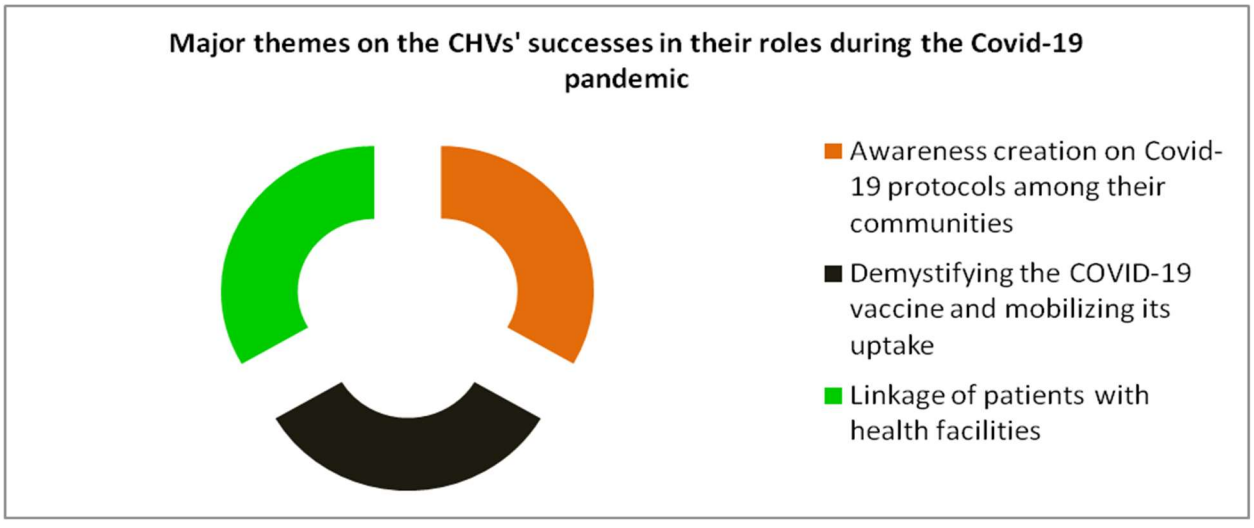

Figure 4.4: Major themes on the CHVs' successes in their roles during the Covid-19 pandemic

These are as highlighted in the following FGD excerpts;

Theme 1 - Awareness creation on COVID-19 protocols among their communities

Group 1 Participant 004 said:

> "We were able to teach community members about COVID 19 prevention and particularly on how to wear masks and how to do proper hand washing. We also moved round homes to observe community members' application of the guidelines."

Group 1 participant 006 noted:

> "I held numerous training sessions about COVID-19 and particularly on prescribed COVID-19 prevention protocols to members within my community and adjacent communities."

Group 2 participant 003 shared:

> "We mobilized community members into *Barazas* and educated them about COVID-19 and measures to protect oneself from the infection."

Group 2 participant 007 noted:

> "I visited several local churches during Sunday service and was offered an opportunity to inform the congregants about COVID-19 and regarding the various recommended COVID-19 prevention protocols."

Theme 2 - Demystifying the COVID-19 vaccine and mobilizing its uptake

Group 1 participant 002 shared:

> "……..We also taught about the COVID 19 vaccine and mobilized members to go for vaccination."

Group 1 participant 008 shared:

> "We urged our fellow community members not to fear the COVID-19 vaccines and encouraged them to get vaccinated against the COVID-19 infection."

Group 2 participant 001 shared:

> "I mobilized a significant number of people to get vaccinated against the COVID-19 infection. I am glad most listened to my advice and got the jab."

Group 2 participant 004 shared:

"During the vaccination period although we walked a lot we managed to convince many people to get the COVID vaccine."

Theme 3 - Linkage of patients with health facilities

Group 1 participant 005 shared:

"When called upon to help and the cases were beyond my capabilities, I liaised with other community members and helped link such patients to nearest health facilities."

Group 1 participant 006 stated:

"We would refer clients to the hospital for testing which is the linkage that we do."

Group 2 participant 008 opined:

"Linking the sick ones to local health care facilities on a timely and effective manner was part of the successes we achieved."

Group 2 participant 003 added:

"I remember a referral we had to do and had to call my fellow CHV because the patient was very sick and we managed to take the patient to the hospital. We had to use our money to get transport."

Group 2 participant 006 stated:

"……. I also remember several cases where we referred pregnant women to the nearby health facility for their clinic and childbirth related support and they did help her."

Regarding the factors that played a role in the CHVs success in their roles during the COVID-19 pandemic, the respondents were unanimous that they would attribute their successes to factors including dedication, teamwork, mobilization skills and having been trained on the COVID 19 protocols. These are as highlighted in Figure 4.5.

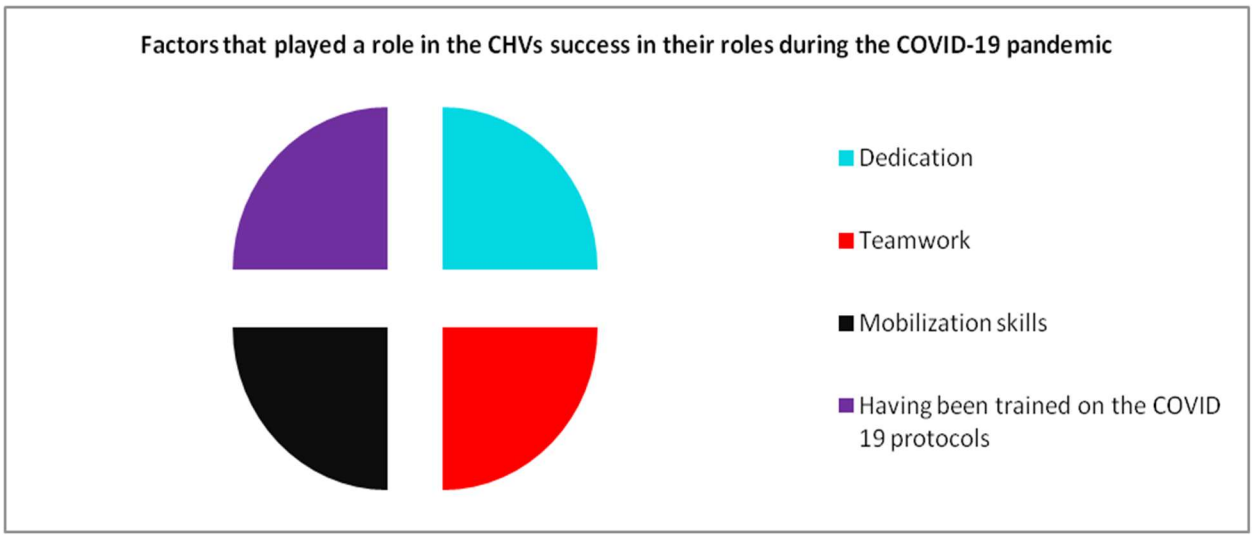

Figure 4.5: Factors that played a role in the CHVs success in their roles during the COVID-19 pandemic

This was as captured in the following FGD excerpts;

Group 1 participant 002 shared:

"We were dedicated to help people because that is our work."

Group 1 participant 005 stated:

> "We all joined hands and worked closely with each other as CHVs along with our communities. This is how we succeeded."

Group 1 participant 007 opined:

> "I remained dedicated to my work throughout the COVID-19 pandemic. I am also grateful that we had undergone through training on COVID-19 prevention protocols."

Group 2 participant 006 added:

> "Our success was rooted in teamwork and close collaboration with various key players in our communities including government and religious leaders."

Group 2 participant 007 noted:

> "I would attribute success in our work to sheer determination and dedication."

Group 2 participant 002 asserted:

> "Strong mobilization skills, sheer dedication to our work and prior trainings on COVID-19 were instrumental to our success in our work during the pandemic."

As to whether the input of CHVs was valued and their individual efforts recognized, there were mixed feelings and views among the FGD participants with some saying 'yes' and others saying 'no'. Those who felt that their efforts and inputs were valued cited appreciation by their

communities and community heeding to their advice on various health related matters while those who felt that their efforts and inputs were not valued cited lack of recognition of CHVs by other health care workers and neglect by the government. This is as highlighted in the following FGD excerpts;

Theme 1 - Yes, our efforts and inputs are valued

Group 1 participant 005 indicated:

> "Yes, by the community as they appreciate our work and consult us on health matters."

Group 1 participant 006 shared:

> "Yes, they see what we do for them though we are not paid we do our best."

Group 1 participant 007 stated:

> "The community appreciates us and tells us we are doing very good work for them."

Group 2 participant 006 noted:

> "We do good work to the community, they are happy whenever we visit them and they appreciate us."

Group 2 participant 007 shared:

"When I give health education in the community, I see them happy and they say doctor you really help us."

Group 2 participant 008 added:

"People in the community tell us that we are helping them. They are happy when we take Vitamin A, dewormer and other health services to them."

Theme 2 - No, our efforts and inputs are not valued

Group 1 participant 002 opined:

"Though healthcare workers listen to us, they don't act on information and suggestions we give."

Group 1 participant 003 opined:

"No, because the government does not provide us with necessary tools and materials required for our work. They also do not facilitate our movement and communication with the communities we serve."

Group 1 participant 005 said:

"Health workers do not recognize CHVs. The government as well does not recognize CHVs because they don't even pay us."

Group 2 participant 005 asserted:

"The health workers and the government do not recognize CHVs."

Group 2 participant 001 pointed:

> "No action is taken by health workers on suggestions and inputs made by the CHVs."

Group 2 participant 003 argued:

> "The government needs to appreciate CHVs by paying them on time and also taking care of their health."

4.4 Challenges Experienced by Community Health Volunteers during the COVID-19 Pandemic

The study explored the challenges experienced by the CHVs during the COVID-19 pandemic. The respondents were asked whether they experienced challenges in their work as CHVs. All of the study participants (100%, n = 282) were unanimous in their response that they did face challenges in their work as CHVs, sentiments also shared by all participants in the focus group discussions. A highlight of the various challenges that the respondents faced in their work during the COVID-19 pandemic are as presented in the subsequent subsections.

4.4.1 The Challenge of Inadequate or Delayed Stipends

The respondents were queried on whether they encountered any difficulties in the form of inadequate or delayed stipends. From the findings, all (100%, n = 282) of the respondents answered in the affirmative that they did experience the challenge of inadequate or delayed stipends. They noted that allowances offered were little and were irregularly paid and that the

stipend was delayed for far too long forcing them to work for months and at times even years without the stipend. COVID-19 pandemic aggravated the situation as it occasioned a significant rise in costs of living and transport costs further straining the CHVs' already precarious financial situation. COVID-19 pandemic also caused increased operational costs on the part of CHVs due to the need to procure preventive materials such as masks and sanitizers.

4.4.2 The Challenge of Social Stigma

The respondents were requested to indicate whether they encountered any difficulties in the form of social stigma. From the findings, slightly over half (51.4%, n = 145) of the respondents indicated that they did not experience social stigma in their work, while the rest did however acknowledge that they experienced social stigma in their work. For the respondents that indicated as having experienced social stigma in their work, they attributed it to the community members fear or perception that the CHV would infect them with COVID-19, the community members looking down upon the CHVs, the community members ignoring the CHVs, the community members being hostile or not welcoming to the CHVs while others did not even want to be associated or seen interacting with the CHVs. Figure 4.6 shows the findings.

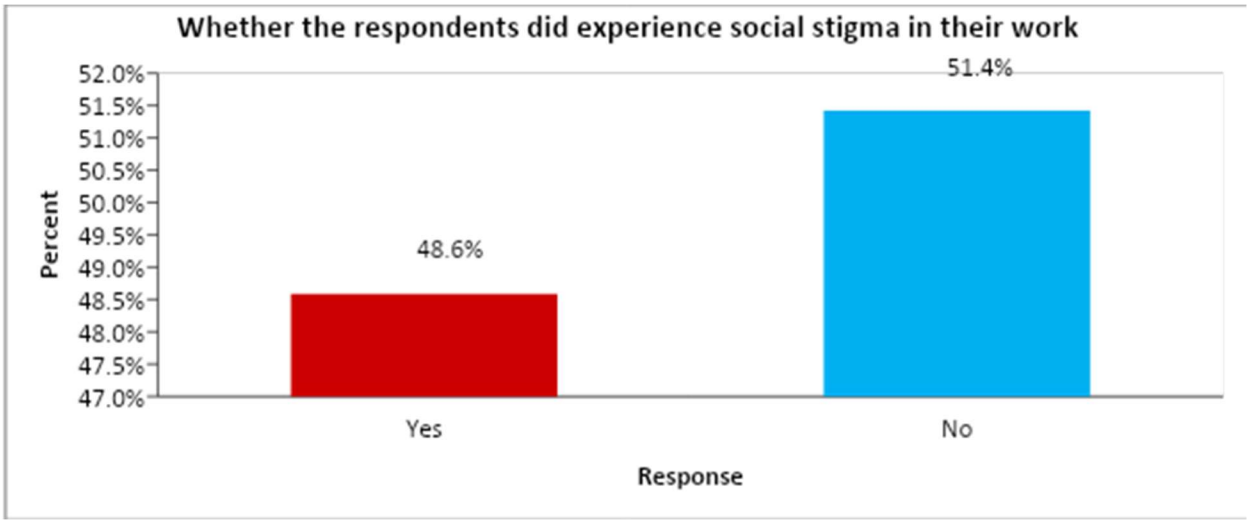

Figure 4.6: Whether the respondents did experience social stigma in their work

4.4.3 The Challenge of Concerns about Contracting Covid 19

The respondents were requested to indicate whether they experienced concerns about contracting COVID-19 during their work. From the findings, most (82.3%, n = 232) of the respondents indicated that they did experience concerns about contracting COVID-19 during their work, as is indicated in Table 4.2. They attributed this largely to lack of personal protective equipment such as inadequate masks and sanitizers and due to the risk of interacting with so many people most of whom had no masks.

Table 4.2: Whether the respondents experienced concerns about contracting COVID-19 during their work

		Frequency	Percent
Had concerns about contracting COVID-19	Yes	232	82.3
	No	50	17.7
	Total	**282**	**100.0**

4.4.4 The Challenge of Community Opposition

The respondents were further requested to indicate whether there was community opposition to their work during the COVID-19 pandemic. From the findings, most (70.2%, n = 198) of the respondents indicated that they did not experience community opposition to their work during the COVID-19 pandemic. Among the remaining that indicated as having experienced community opposition to their work during the COVID-19 pandemic, most of the community opposition to the CHVs' work was attributed to community members' resistance to the COVID-19 vaccine, their denial of the existence of COVID-19, their misconceptions about the COVID-19 vaccine such as it being a contraceptive or would cause death and fear that the CHVs would infect them with COVID-19. The findings are as presented in Figure 4.7.

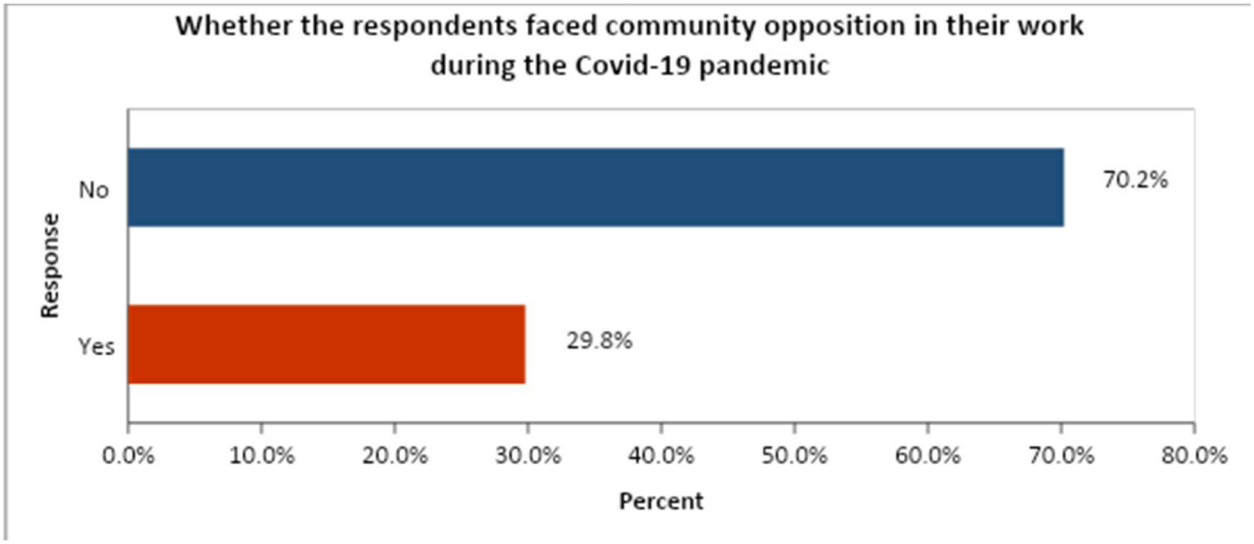

Figure 4.7: Whether the respondents faced community opposition in their work during the COVID-19 pandemic

4.4.5 The Challenge of Inadequate or Unsupportive Supervision

The respondents were also asked whether they faced any difficulties related to inadequate or unsupportive supervision. From the findings, the majority (96.1%, n = 271) of the respondents indicated that they did not experience inadequate or unsupportive supervision during the COVID-19 pandemic, as is shown in Figure 4.8. Few of the respondents that indicated as having experienced inadequate or unsupportive supervision during the COVID-19 pandemic attributed it to being left alone in the field work most of the time.

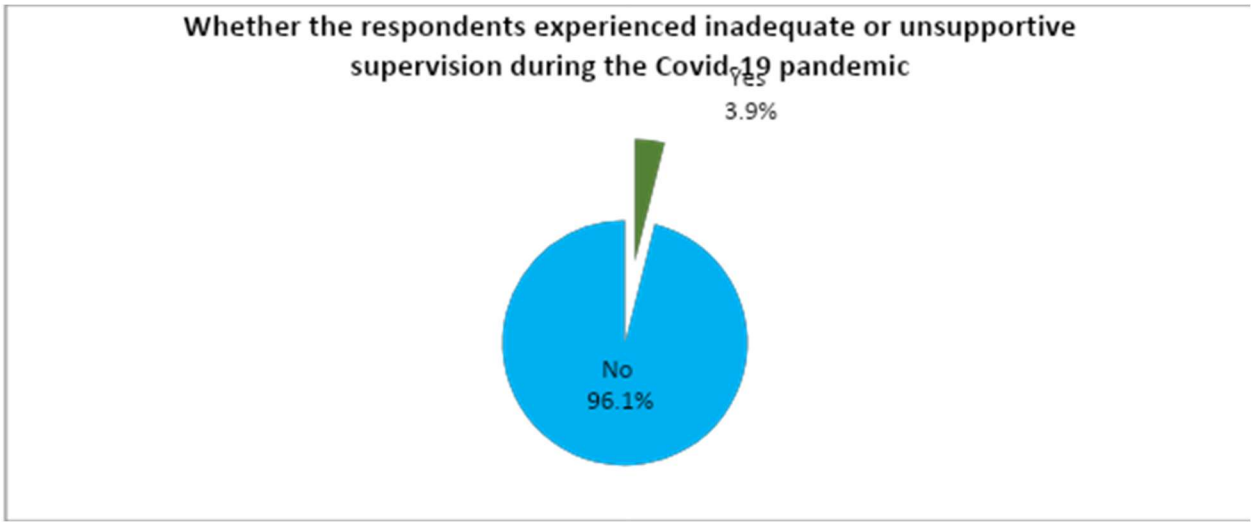

Figure 4.8: Whether the respondents experienced inadequate or unsupportive supervision during the COVID-19 pandemic

4.4.6 The Challenge of Inadequate On-Job Training

The respondents were also queried on whether they suffered inadequate on-job training during the COVID-19 pandemic. According to the results, most (86.5%, n = 244) of the respondents indicated that they did not experience inadequate on-job training during the COVID-19

pandemic. Those who cited that they experienced inadequate on-job training during the COVID-19 pandemic attributed it to the training being few in number, little training time and the training being minimal in content. The results are as presented in Figure 4.9.

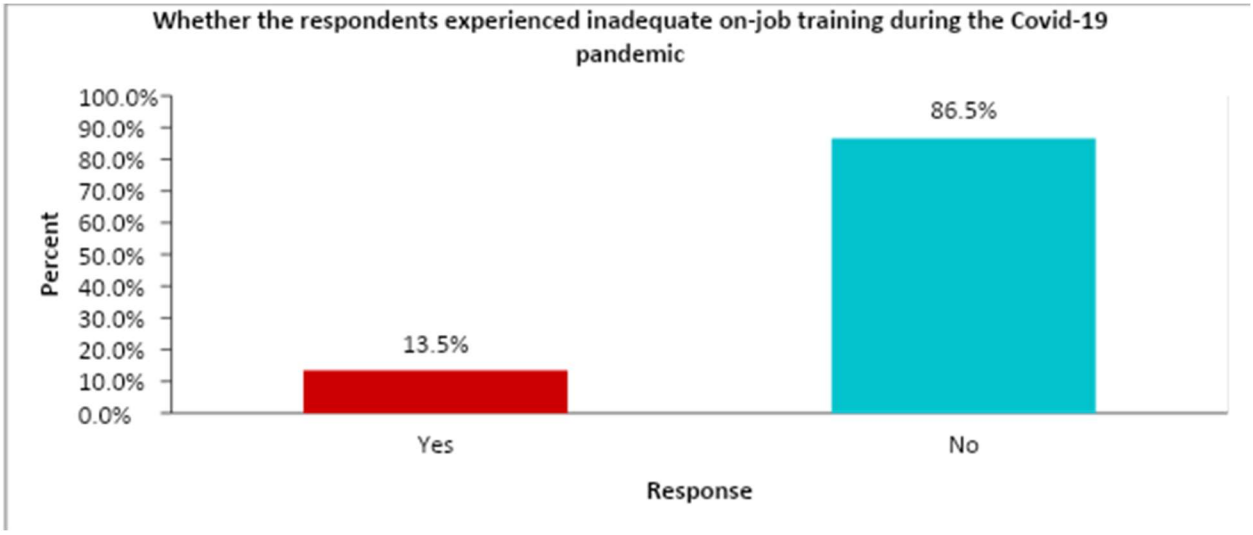

Figure 4.9: Whether the respondents experienced inadequate on-job training during the COVID-19 pandemic

4.4.7 The Challenge of Excessive Workload

The respondents were also requested to indicate whether they suffered excessive workload during the COVID-19 pandemic. From the findings, the majority (90.4%, n = 255) of the respondents acknowledged that they experienced excessive workload during the COVID-19 pandemic. The respondents attributed the excessive workload to being engaged in activities including creating awareness and educating the community about COVID-19 and on COVID-19 prevention protocols; regular tracking and follow up of COVID-19 victims; having to undertake numerous visits to different households to teach them on COVID-19 prevention protocols and on

COVID-19 vaccine and to ensure that the households were upholding the protocols and numerous reports on COVID-19 they had to compile. The results are illustrated in Figure 4.10.

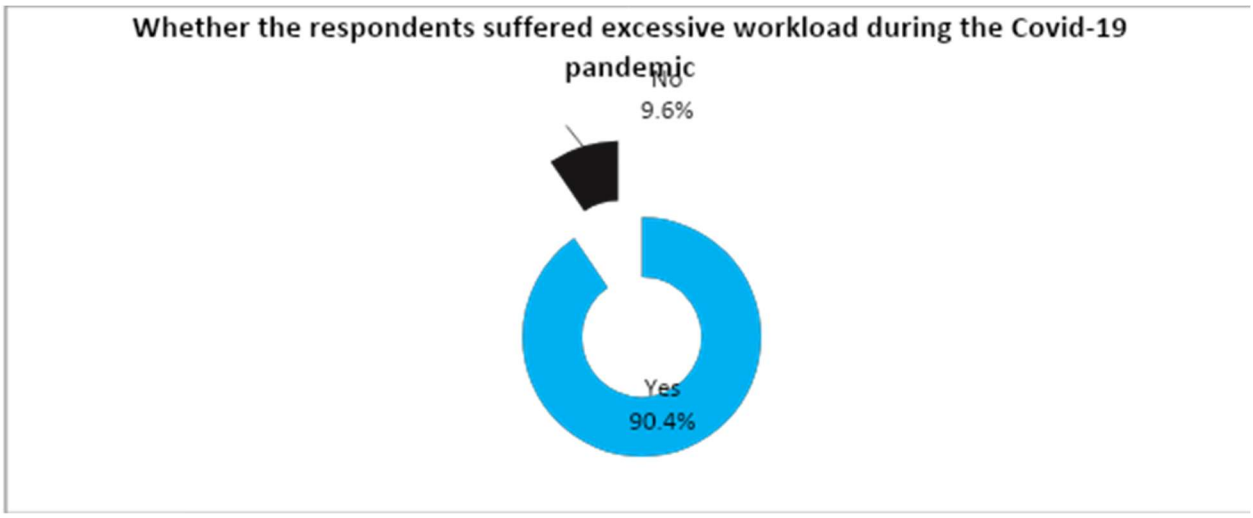

Figure 4.10: Whether the respondents suffered excessive workload during the COVID-19 pandemic

4.4.8 The Challenge of Difficulties in Transport

The respondents were also asked whether they experienced difficulties in transport during the COVID-19 pandemic. From the findings, the majority (94.7%, n = 267) of the respondents did acknowledge that they experienced difficulties in transport during the COVID-19 pandemic which they attributed to lack of transport means and hence having to walk long distances during their work. They also attributed this to the use of motorbikes. Results are as shown in Table 4.3.

Table 4.3: Whether the respondents experienced difficulties in transport during the COVID-19 pandemic

		Frequency	Percent
Difficulties in transport experienced?	Yes	267	94.7
	No	15	5.3
	Total	**282**	**100.0**

4.4.9 The Challenge of Lack of Tools and Materials

The respondents were also requested to indicate whether they experienced lack of tools and materials during the COVID-19 pandemic. Majority (92.2%, n = 260) of the respondents indicated that they did experience lack of tools and materials during the COVID-19 pandemic, as depicted in Figure 4.11. The respondents cited inadequacy of face masks, lack of uniforms, gloves and sanitizers and being provided with first aid kits and CHV bags that were either empty or inadequately equipped as evidence of this particular challenge. They also reported that the reporting tools were not enough and they had to use their own money to photocopy the tools which they felt was not fair.

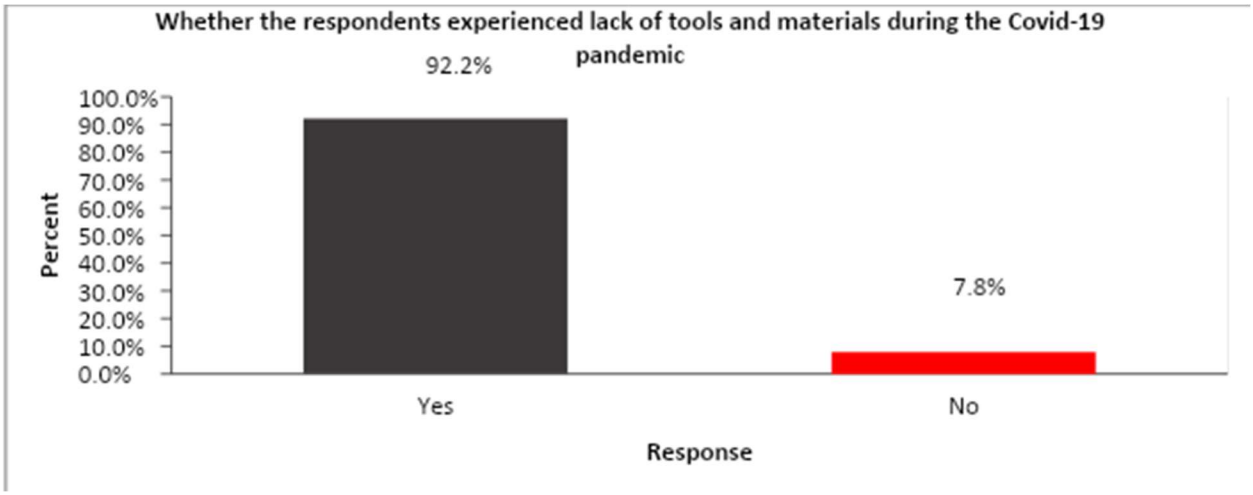

Figure 4.11: Whether the respondents experienced lack of tools and materials during the COVID-19 pandemic

4.4.10 Other Challenges that the Respondents faced during the COVID-19 Pandemic

The respondents were requested to cite other challenges that they experienced during the COVID-19 pandemic. According to the results, some of the other challenges experienced by the CHVs in Machakos County during the COVID-19 pandemic were lack of support and recognition from the government and the community, low motivation due to delayed stipends and poor pay, not being appreciated by the community members for their role in the society, unrealistic expectations from the communities they served such as the CHVs being expected to provide medication and food for the households they visited, hunger and thirst while at work, community members who are uncooperative and ignorant of their own health, being ignored by other health care providers, communication challenges, high levels of poverty in the communities they served, poor health system infrastructure within local communities and being

ill-equipped to do their work. This showed that CHVs in Machakos County faced a wide range of challenges in their work during the COVID-19 pandemic.

Similar observations about the challenges that the CHVs faced in their work during the COVID-19 pandemic were also espoused in the focus group discussions. Three major themes regarding the challenges that the CHVs experienced were derived. These included poor remuneration, inadequate facilitation and lack of support and recognition as are illustrated in Figure 4.12.

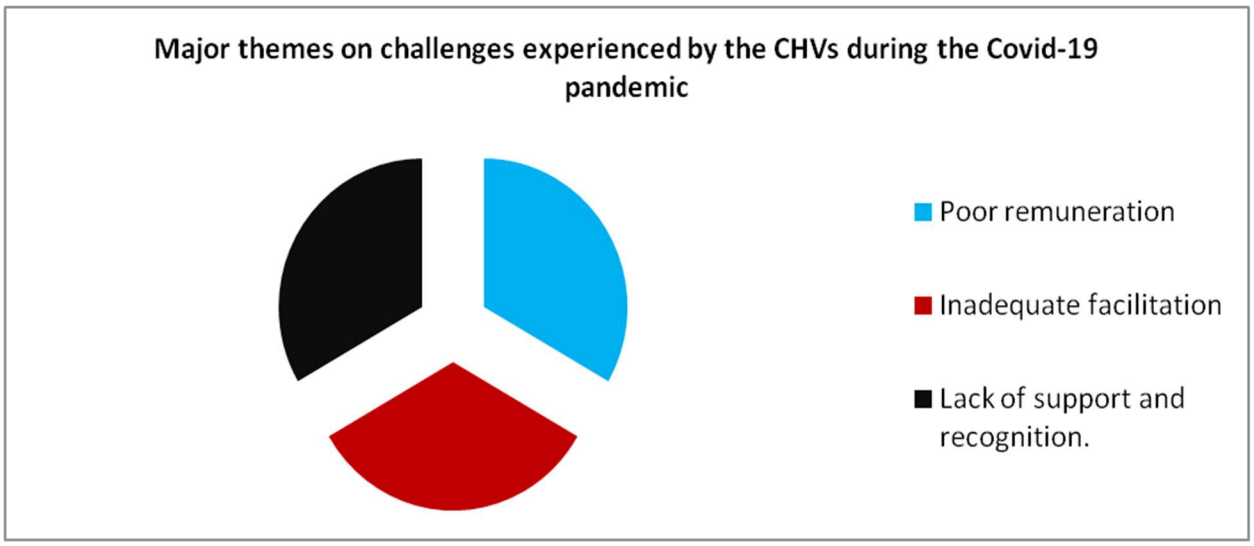

Figure 4.12: Major themes on challenges experienced by the CHVs during the Covid-19 pandemic

These were as enumerated in the following FGD excerpts;

Theme 1 - Poor remuneration

Group 1 Participant 001 said:

> "The stipend is little and not paid regularly. Sometimes it takes years before we are paid. It is very demotivating."

Group 1 participant 003 noted:

> "Working without motivation is really discouraging. The pay is so little and is delayed all the time. They should look into this"

Group 1 participant 007 asserted:

> "The pay we receive is very little and is often delayed. It could be months and, at times, years before the stipend arrive. Yet you've been serving faithfully all through. That's our predicament"

Group 2 participant 005 shared:

> "The government promised to be paying a stipend of Ksh. 2500 to us. For many years we stay without it and when it ever comes maybe once or twice then it disappears again."

Group 2 participant 008 pointed:

> "The stipend is little, unpredictable, and not forthcoming. It's barely paid on time"

Group 2 participant 009 averred:

"Not being paid has been the norm, and when they do pay, it's little and paid late."

Theme 2 - Inadequate facilitation

Group 1 Participant 002 said:

"We walk for long distances even in harsh weather conditions, like now it is very sunny and you have to walk from house to house and the houses are not close to each other. When you have money you use motorbike but it's expensive."

Group 1 participant 004 noted:

"When we go for training, we are told to sign without indicating the amount of the transport reimbursement. We wonder why that happens and when we ask we are not called for training again."

Group 1 participant 007 opined:

"Sometimes we are given empty CHV bags without necessary tools and materials needed for our work, and no explanations are offered."

Group 2 participant 003 shared:

"Transport is a big problem. We are forced to walk for long distances as sometimes the households are quite far apart. Many times on an empty stomach and without even water to drink, yet the weather here is harsh."

Group 2 participant 004 pointed:

> "Even during the COVID-19 pandemic, we were not provided with protective materials. We lacked masks, gloves and even the first aid kits given were empty. You are even forced to use your own airtime to do client's follow-ups with false promises that this would be compensated, but it's never reimbursed. "

Group 2 participant 009 added:

> "We use our own resources for the referral of patients like you may find a very sick person in the community and they need to be taken to the hospital and the ambulance is not available or has no fuel."

Theme 3 - Lack of support and recognition

Group 1 Participant 002 said:

> "Sometimes you get this feeling that nobody appreciates our work - not the government, not other health care workers, and not our communities."

Group 1 participant 005 noted:

> "…….. and it's not uncommon to be ignored by the very people you are serving - the community members. Some are even hostile and unwelcoming and close their homes whenever they see us approaching their homesteads."

Group 1 participant 007 opined:

> "Sometimes we get opposition from the community especially because of hunger in the community and the ignorant community members."

Group 2 participant 002 shared:

> "Some community members despise our work, to the point of looking down on us. Some people even said we were COVID-19 carriers"

Group 2 participant 003 shared:

> "Some community members refuse to be visited by a CHV. Others fear to interact with us. At one point during COVID-19, I was even being accused that I was spreading the virus."

Group 2 participant 007 averred:

> "Some of the health workers do not recognize or appreciate CHVs. Others even say that we are not fit for the job."

4.5 CHVs Work Output Indicators during the COVID-19 Pandemic

The study sought to establish the levels of CHVs work output indicators in Machakos County during the COVID-19 pandemic. The findings are as outlined in subsequent subsections.

4.5.1 CHVs Work Output Indicators as Reported by the Respondents

Regarding the number of households, the respondents visited the previous month, most (62.4%, n = 176) indicated that they visited above 20 households. Regarding the number of health

education forums that the respondents conducted last month, 43.3% (n = 122) said 2 - 4 while a third (33.7%, n = 95) said 5 and above. Regarding the number of *Barazas* the respondents addressed last month, 40.4% (n = 114) said only one while 36.5% (n = 103) said 2 - 4. Regarding the number of CHVs meetings the respondents attended in a month, most (73.8%, n = 208) indicated 2 - 4. Regarding the number of clients, the respondents had referred last month, most indicated between 1 and 5 (only one - 35.5%, n = 100; two - five were 32.3%, n = 91). Results are as shown in Table 4.4.

Table 4.4: CHVs work output indicators as reported by the respondents

Work output indicators		**Frequency**	**Percent**
Number of households visited last month	1 - 10	28	9.9
	11 - 20	78	27.7
	Above 20	176	62.4
	Total	**282**	**100.0**
Number of health education forums conducted last month	None ever	6	2.1
	Only one	59	20.9
	2 - 4	122	43.3
	5 and above	95	33.7
	Total	**282**	**100.0**
Number of *Barazas* addressed last month	None	49	17.4
	Only one	114	40.4
	2 - 4	103	36.5
	5 and above	16	5.7
	Total	**282**	**100.0**
CHVs meetings attended in a month	None ever	2	0.7
	Only once	65	23.0
	2 - 4	208	73.8
	5 and above	7	2.5
	Total	**282**	**100.0**
Number of clients you referred last month	None	60	21.3
	Only one	100	35.5
	2 – 5	91	32.3

	6 and above	31	11.0
	Total	**282**	**100.0**

4.5.2 CHVs Work Output Indicators as Documented in the County's MOH CHVs Data Collection Sheet

Data retrieved from KHIS MoH 515 records for 2019 to 2021 indicates that there were improvements in the work output of community health volunteers working in the county over the period, though most of the entries for 2019 for the various indicators of the CHVs work output were missing or undocumented. When the researcher sought to know why the missing entries for 2019 from the community focal person, the finding was that there was poor reporting in 2019 due to low emphasis on the work of the CHVs in the pre COVID-19 period. However, there was a great improvement in work output reported in subsequent years as COVID-19 enhanced the role of the CHVs.

For instance, the number of children of 0-11 months referred for immunization rose from 289 in 2019 to 1,814 in 2021. The number of immunization defaulters referred rose from 15 in 2019 to 121 in 2021. The number of women aged 15 - 49 years provided with FP commodities rose from 3,691 in 2020 to 4,212 in 2021. The number of pregnant women counseled on ANC services from 406 in 2020 to 1,742 in 2021. The number of new deliveries that took place in the health facility rose from 245 in 2019 to 505 in 2021. The number of newborns visited at home within 48 hours of delivery rose from 1,246 in 2019 to 3,087 in 2020 though it significantly declined in 2021 to only 159. The number of women with home deliveries referred for post natal care (PNC) services rose from 21 in 2020 to 64 in 2021 while total number of households visited by CHVs in

the month (new visits) rose from 23,949 in 2020 to 35,825 in 2021. The results are as outlined in Table 4.5.

Table 4.5: CHVs work output indicators as documented in the County's MOH CHVs Data Collection Sheet

	2019	2020	2021
Work output indicators	**Cases (n)**	**Cases (n)**	**Cases (n)**
Child 6-59 months referred for Vitamin A supplementation	-	1,941	10,428
Children of 0-11 months referred for immunization	289	735	1,814
Immunization defaulters referred	15	192	121
Number of children 12-59 months dewormed	887	11,000	3,396
Number of women 15 -49 yrs counselled on FP methods	-	4325	9289
Number of women 15-49 yrs Referred for FP Services	-	765	2150
Number of women 15-49 yrs provided with FP commodities	-	3691	4212
Number of pregnant women counselled on ANC services	-	406	1,742
Number of pregnant women Referred to health facility	250	518	1,064
Number of pregnant women counselled on ANC services	-	406	1,742
Number of New deliveries that took place in Health Facility	245	303	505
Number of new mothers visited within 48 hrs of delivery	-	37	166
Number of new-borns visited at home within 48 hours of delivery	1,246	3,087	159
Home delivery referred for Post Natal Care (PNC) Services	-	21	64
Total number of community Action Days held	-	43	366
Total number of community dialogue days held	-	19	111
Total number of community units monthly meetings held	-	72	228
Total number of households visited by CHVs in the month (New Visit)	-	23,949	35,825
Total number of households visited in the month by CHVs (Revisit)	-	12,146	23,497

Source: Machakos County MOH 515 Revised CHVs Records, 2019 - 2021

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents discussion of findings, conclusions and recommendations of the study in line with the study objectives. The study assessed the enablers and challenges on performance of community health volunteers in Machakos County during the COVID-19 pandemic.

5.2 Discussion

5.2.1 Socio-Demographic Characteristics of the Respondents

In this study, the majority of the respondents were female CHVs, aged 30 years and above, most of whom were also married and had basic education background and had served as CHVs for over 5 years.

On gender, most of the study participants were female denoting that most of the community health volunteers in Machakos County were female. This could possibly be related to the nature of work that the CHVs performed which mainly dwelled on maternal and children's health issues including family planning, pregnancy and childbirth, vaccinations as well as antenatal and postnatal care related aspects. The findings agreed with those of Ndedda *et al.* (2012) who in a cross-sectional study of community health workers in a Kenyan district reported that most of them were female. In studies by DeRenzi *et al.* (2017) in India and Mwendwa (2018) in Rwanda, most of the surveyed community health workers were found to be female. Studies by Lister *et al*. (2017), Aseyo *et al.* (2018) and Taylor *et al.* (2018) did also report that the majority of the CHVs were female by gender. None of the reviewed studies had male as the dominant gender.

The study established that the majority of the study participants were aged 30 years and above, denoting that most of the CHVs in Machakos County were middle aged. It also implied that most of the community health volunteers were old enough to comprehend and appreciate the significance of their work and roles in enhancing the health and wellbeing of their communities. This was in line with the findings of DeRenzi *et al*. (2017) in whose study most of the participating CHVs were aged 30 - 55 years. Similarly, in a cross-sectional study conducted in rural Rwanda, most of the surveyed community health workers were found to be aged 30 years and above as reported by Mwendwa (2018). Other studies that reported the age range of most of the surveyed community health workers as being 30 years and above were those by Ndedda *et al*. (2012) and Aseyo *et al*. (2018).

According to the study findings, most of the study participants indicated that they were married. This showed that most of the community health volunteers in Machakos County were in marital unions. This could possibly imply that they were in a good position to understand health related challenges that households in their communities experienced. The findings were in line with those of Ndedda *et al*. (2012) in whose study the majority of the surveyed community health workers indicated that they were married. In studies by Lister *et al*. (2017) and Taylor *et al.* (2018), most of the surveyed community health workers were also reported to be married, an observation also made in studies by Kuule *et al.* (2017), Njororai *et al.* (2021) and Opimbi (2021).

The study findings revealed that the majority of the study participants had Primary and Secondary level education denoting that most of the community health volunteers in Machakos County had a basic education background. Based on their relatively low education level, it

implies that the CHVs largely dwelt with basic health issues and concerns within their communities and likely advised their fellow community members to seek medical health services in hospitals for cases that were beyond their capacity and expertise. Similar findings were reported by Aseyo *et al*. (2018) and Taylor *et al.* (2018) in which most of the surveyed community health volunteers were found to possess elementary education. Basic education background was also established to be the prevalent education level among most of the surveyed CHVs in studies conducted by Brunie *et al.* (2014), Indrani *et al.* (2019) and Bezbaruah *et al.* (2021).

In this study, most of the study participants indicated that they had worked as a community health volunteer for over 5 years. This implied that most of the community health volunteers in Machakos County had served in that role for a considerable duration. As such, through many years of work as CHVs, they had good knowledge of the challenges and enablers that CHVs experienced. This concurred with the findings of DeRenzi *et al.* (2017) in which most of the surveyed community health volunteers were found as having worked in that role for over 10 years. Similarly, in studies performed by Ivang and Etienne (2021) in Rwanda and Jerome and Ivers (2010) in Haiti, the majority of the interviewed CHVs were reported to have worked in that role for 10 or more years. In contrast, CHVs in studies conducted by Rabadi *et al*. (2016) and Lister *et al*. (2017) had served in that role mostly for below 10 years.

5.2.2 Enablers of Community Health Volunteers during the COVID-19 Pandemic

According to this study, the enablers of the community health volunteers in Machakos County during the COVID-19 pandemic included priority access to health services, belonging to a social

support group within the community, appreciation of CHVs efforts by the community, social support from the community and monetary compensation for their role/work.

In this study, priority access to health services was identified as one of the enablers of community health volunteers in Machakos County during the COVID-19 pandemic, albeit for few of the community health volunteers. Study findings showed that only very few of the surveyed CHVs received priority access to health services during the COVID-19 pandemic which included not queuing for services when they went to the hospital and getting prioritized when they sought health care services. This denoted that this form of an enabler was not widely applied in Machakos County. In their study on integration of community health workers in developing nations' health systems, Asweto *et al.* (2016) identified provision of preferential access to health services for CHWs as one of the enablers that had massive positive effects on their work performance. Similarly, providing preferential access to health services for community health volunteers in need was found to positively correlate with the CHVs' work output according to a study by Kuule *et al*. (2017). Studies by Kok *et al.* (2017) and Bhaumik *et al.* (2020) also argued that non-financial incentives for CHVs such as providing them with priority access to health services, such as when they or their children were unwell, was an instrumental pathway of enhancing their morale and dedication to their work, sentiments also shared by Brunie *et al.* (2014).

Another enabler of CHVs in Machakos County during the COVID-19 pandemic was their belonging to a social support group within their communities. Majority of the surveyed CHVs acknowledged that they did belong to a social support group in their community which they further acknowledged was helpful to them. According to this study, the most common kinds of

social support groups that the CHVs belonged to included self-help groups and merry go rounds, welfare groups and table banking. This showed that most of the CHVs valued being in social support groups within their communities which this study attributes to the CHVs need to cultivate social cohesion, oneness and a sense of belonging with communities that they served and resided. The findings concurred with those of Indrani *et al*. (2019) who also established being part of a social support group as one of the non-material incentives that acted as an enabler to CHVs in their work. Similarly, Glenton *et al*. (2021) also identified being part of a social support group as an enabler of CHVs in their work as it allowed the CHVs an opportunity to create rapport with some of the community members they served in their CHV role. Other studies that identified social support groups' membership as an enabler of CHVs in their work, through enhancing greater cohesion, trust and understanding between CHVs and community members included those by Kuule *et al.* (2017) and Aseyo *et al.* (2018).

Appreciation of CHVs efforts by the community was another enabler of CHVs in their work in Machakos County during the COVID-19 pandemic. In this study, almost all of the surveyed CHVs unanimously agreed that they did believe that their communities appreciated their efforts. The CHVs pointed that community members appreciated them and their work, community members consulted them on health matters, community members welcomed them to their homes and thanked them for their services and community members informed them of any cases that required the CHVs attention and that the community members were eager to learn from the CHVs and to follow the CHVs advice. This implied that communities' appreciation of the work of CHVs was an enabler of the CHVs in their work in Machakos County during the COVID-19 pandemic. This study therefore holds the view that positively transforming the perceptions of

communities towards the work of community health volunteers would help the communities appreciate more this cadre of healthcare workers which would be a positive motivation among the CHVs in their work. Similar sentiments were shared by Mishra *et al.* (2022) who argued that appreciation of the efforts, sacrifices and devotion of CHWs by the communities they served positively influenced the work output of CHWs. Studies by Ndima *et al.* (2015) and Musoke *et al.* (2021) also acknowledged the positive effects of communities' recognition and appreciation of the work efforts of community health volunteers on the CHVs work. Shihundu *et al.* (2019) and Razu *et al.* (2021) did also establish recognition and appreciation of the efforts and sacrifices of CHVs by the communities they served as a significant enabler of the CHVs in delivery of their responsibilities.

This study also established that social support from the community was another enabler of CHVs in their work in Machakos County during the COVID-19 pandemic, albeit only a few of the CHVs. In this study, the majority of the surveyed CHVs indicated that they did not receive any social support from the community. However, few of the surveyed CHVs acknowledged that they did receive social support from their communities which took the forms of community's support of the CHVs' work through being appreciative and cooperating with the CHVs, community members offering moral support in form of encouraging and comforting words and supporting the CHVs whenever the CHV had any personal or family related problems. This showed that social support from the community was one of the enablers of CHVs which was not common in the study area. The lack of or low social support to CHVs from the community could be attributed to the communities' low appreciation of the significance of CHVs' role in promoting the health and wellbeing of the community members. The findings were in contrast to

those reported by Vareilles *et al.* (2015), White *et al*. (2017) and Shihundu *et al*. (2019) which reported high levels of social support accorded to CHWs by the communities they served. High levels of social support for CHVs from the community were also reported in studies by Sharma, et al. (2014) which contrasted with current study's findings. These studies attributed the high level of social support accorded to CHWs by the community-to-community sensitization regarding the essence of the work done by the community health volunteers.

Another enabler of the community health volunteers in Machakos County was monetary compensation for their role/work. In this study, almost all of the surveyed CHVs agreed that they did receive monetary compensation for their role which was in the form of a stipend paid by the Machakos County Government. However, they all lamented that the stipend was very little and was delayed or irregularly paid. This study therefore argued that the little stipend offered to the CHVs in Machakos County and delay in its payment transformed monetary compensation from being a positive enabler to the CHVs in their work to being a major hurdle that adversely impacted the CHVs in their work. It was therefore apparent that for monetary compensation to be an effective enabler of the CHVs in their work in Machakos County there was need for improvements in both the amount and timeliness of payment of the stipend. The findings were in line with those of Kane *et al.* (2016), Kuule *et al.* (2017) as well as Ivang and Etienne (2021) who argued that enhanced monetary compensation of CHVs for their roles was an enabler to greater work output among the community health volunteers. Similar sentiments were shared by Indrani *et al.* (2019) and Gichaga *et al.* (2021) who also identified financial payments made to CHVs as an enabler to their increased productivity in their roles. This view was also supported

by Brunie *et al.* (2014) and Bhaumik *et al.* (2020) who also acknowledged financial support in form of monetary compensation as being a significant enabler of CHVs in their work.

5.2.3 Challenges Experienced by Community Health Volunteers during the COVID-19 Pandemic

According to this study, the challenges that the community health volunteers in Machakos County experienced during the COVID-19 pandemic could be grouped into 3 main themes - poor remuneration, inadequate facilitation and lack of support and recognition.

One of the leading challenges that the CHVs in Machakos County experienced in their work during the COVID-19 pandemic was poor remuneration as evidenced by inadequate or delayed stipends. Indeed, all the CHVs who participated in this study were unanimous that the allowances offered were little and were irregularly paid and that the stipend was delayed for far too long forcing them to work for months and at times even years without the stipend. Similar sentiments were shared by the FGD participants, most of whom identified poor remuneration as the most pressing challenge that they suffered in their work. This could be attributed to neglect of community health work by the county government of Machakos and the general lack of appreciation among persons in authority of the important role that CHVs play in health promotion and disease prevention within local communities. The findings agreed to those of Bezbaruah *et al*. (2021) who in a review of community health workers' roles in advancing health security and resilient health systems in South-East Asia reported low remuneration of CHWs and lack of incentives as major hurdle experienced by these cadre of health workers in their work. Similar sentiments were shared by Aseyo *et al*. (2018) and Indrani *et al.* (2019) who in studies

done in Kenya also identified poor pay in form of very little stipends offered to CHVs as one of the major challenges that the CHVs faced in their work. Low remuneration as a leading source of demotivation among community health volunteers and a commonly cited challenge in their work were also reported by DeRenzi *et al.* (2017), Hussein *et al.* (2021) and Gichaga *et al.* (2021). In these studies, just like in the current study, the low remuneration to CHVs was largely attributed to lack of appreciation of the significance of CHVs work in promoting good health and general wellbeing among local communities by county governments' authorities.

Another leading challenge that was faced by community health volunteers in Machakos County in their work during the COVID-19 pandemic was inadequate facilitation. This is evidenced by the findings that part of the CHVs indicated as having received inadequate on-job training. Majority of the CHVs also decried the excessive workload they had to endure due to numerous work activities they had to perform during the COVID-19 pandemic including training their communities about COVID-19 and on COVID-19 prevention protocols; regular tracking and follow up of COVID-19 victims; ensuring that the households were upholding the protocols and numerous reports on COVID-19 they had to compile. Further, the majority of the CHVs said they experienced difficulties in transport as they were not facilitated in their movements during their work. In addition, a big number of the CHVs also acknowledged that they lacked necessary tools and materials for their work during the COVID-19 pandemic including inadequacy of face masks, gloves and sanitizers, first aid kits and lack of uniforms.

This clearly demonstrates that CHVs in Machakos County worked under very tough conditions in which they were poorly facilitated to undertake their work. This could also point to the low regard in which the work of CHVs was perceived by health administrators in the county, which

in turn hurts the CHVs ability to deliver on their responsibilities. The current study attributes this challenge mainly to low funding of community health programs and services in the country. The findings agreed with those of Boakye *et al*. (2018) who identified high volume of work with little facilitation as one of the leading challenges that CHVs faced in their work. The findings were also in line with those of Oliver *et al.* (2015), Sibeko *et al* (2018) and Musoke *et al.* (2021) who also identified inadequate facilitation in the form of underwhelming training of community health volunteers, lack of appropriate inductions and on-job trainings for the CHVs and limited and often unhelpful supervision as leading challenges encountered by community health volunteers in their work. Studies by Kambarami *et al*. (2016) and Kane *et al.* (2016) shared similar views noting that CHWs faced significant obstacles in their work performance due to a lack of regular communication with their supervisors and due to lack of necessary supplies and tools of work which would help them to do their work in a much better way, sentiments also supported by Jaskiewicz and Tulenko (2012). According to studies by Sharma *et al*. (2014), Razu *et al.* (2021), Ness *et al.* (2021) and Lusambili *et al.* (2021) the challenge of inadequate facilitation of community health volunteers in their work manifests in CHVs work related supplies and equipment not replenished regularly, low training opportunities for the CHVs, CHVs not being adequately facilitated transport and communication wise for them to effectively deliver their services and excessive workloads due to inadequate number of CHVs hired to serve the different areas. These studies attributed the challenge of inadequate facilitation of community health volunteers in their work to inadequate funding of community health programs in most of the settings and more so in low resource countries.

The last major challenge that community health volunteers in Machakos County faced in their work during the COVID-19 period was lack of support and recognition. This was evidenced by the findings that a significant proportion of the CHVs indicated that they experienced social stigma in their work during COVID-19 pandemic as they suffered social isolation due to being perceived as COVID-19 carriers. The CHVs also lamented being looked down upon and being ignored by some community members with some community members not willing to be associated or seen interacting with the CHVs. Most of the CHVs also expressed concerns about contracting COVID-19 due to lack of masks and sanitizers. In addition, part of the CHVs also expressed facing community opposition which they largely attributed to fear among community members that the CHVs would infect them with COVID-19 and community members' misconceptions about the COVID-19 vaccine such as it being a contraceptive or would cause death. Lack of support for the CHVs in their work during the COVID-19 pandemic was also evident in their lack of appropriate tools and materials with the CHVs citing inadequacy of face masks, lack of uniforms, gloves and sanitizers and being provided with first aid kits and CHV bags that were either empty or inadequately equipped as serious challenges. It was therefore evident that lack of support and recognition remained a major challenge that the CHVs in Machakos County faced in their work during the COVID-19 pandemic.

This study attributes this finding to possible lack of awareness and enlightenment and poor perception towards community health work among community members and those supposed to support community health work/programs in the county health departments. The findings agreed with those of Lusambili *et al*. (2021) and (Mishra *et al.*, 2022) who identified community-related factors such as stigma, opposition, and an absence of community support, as major hurdles that

hampered community health workers' ability to provide basic health services. Similar observations were made in Bangladesh and Thailand where lack of support from the local communities seen in social stigma, opposition to CHWs' work and communities' denial of resources to support CHWs in their work were reported as major challenges that community health volunteers faced in their work in the 2 countries as reported by Bezbaruah *et al*. (2021) and Razu *et al.* (2021). In studies by Sharma *et al*. (2014), Vareilles *et al.* (2015) and Ness *et al.* (2021) low support for the CHVs work and lack of recognition of their efforts and sacrifices in delivering essential health services to local communities were identified as major challenges that CHVs faced during their work.

5.2.4 CHVs Work Output Indicators during the COVID-19 Pandemic

Findings from the study indicated that there was increased work output among the community health volunteers in Machakos County during the COVID-19 pandemic. For instance, evidence from the Machakos County's MoH 514 records indicated that the number of children of 0-11 months referred for immunization rose from 289 in 2019 to 1,814 in 2021. The number of immunization defaulters referred rose from 15 in 2019 to 121 in 2021. The number of women aged 15 - 49 years provided with FP commodities rose from 3,691 in 2020 to 4,212 in 2021. The number of pregnant women counseled on ANC services from 406 in 2020 to 1,742 in 2021. The number of new deliveries that took place in the health facility rose from 245 in 2019 to 505 in 2021. The number of newborns visited at home within 48 hours of delivery rose from 1,246 in 2019 to 3,087 in 2020 though it significantly declined in 2021 to only 159. The number of women with home deliveries referred for post-natal care (PNC) services rose from 21 in 2020 to 64 in 2021. The number of new mothers visited within 48 hours of delivery rose from 37 in 2020

to 166 in 2021 while total number of households visited by CHVs in the month (new visits) rose from 23,949 in 2020 to 35,825 in 2021. This agreed with Bhaumik *et al.* (2020) and Bezbaruah *et al.* (2021) who in reviews of the roles of community health workers in responding to the COVID-19 pandemic, noted that the work output of CHWs rapidly increased during the COVID-19 pandemic compared to the pre-Covid 19 pandemic period. They attributed this to the fact that the CHWs were not only performing their routine functions of delivering basic health care services to communities but also became part of the health care workforce responding to the pandemic through activities such as training people about COVID-19, administering the COVID-19 vaccines and contact tracing, leading to an increase in their roles scope. Similar observations were also shared by Razu *et al.* (2021) and Musoke *et al.* (2021) who reported that the work output of CHWs had significantly increased following the emergence of COVID-19 pandemic in Bangladesh and Uganda respectively. They reported that CHVs were instrumental in continuance of delivery of primary health services as well as in scaling up COVID-19 counter measures at local community levels.

In contrast, studies by Rahman *et al.* (2021) and Mishra *et al.* (2022) reported a decline in the work output of community health workers largely due to mobility and work-related restrictions imposed as part of COVID-19 containment measures in the various countries. The studies reported that a significant reduction in delivery of basic health care services at community levels was experienced as community health workers were unable to continue working normally due to various restrictions imposed by the authorities as part of reigning in on the spread of the COVID-19 infections. Similar observations on reductions in the work output of CHWs during the COVID-19 pandemic were reported by Opimbi (2021) and Ness *et al.* (2021), and which they

blamed on imposed movement and work restrictions that formed part of COVID-19 control measures.

The study also established that there was poor reporting on CHVs' work output indicators in pre COVID-19 period. This was evidenced by missing entries for 2019 while the reporting significantly improved during the COVID-19 pandemic period as seen in more complete data reported for 2020 and 2021. The poor reporting of the CHVs' work output indicators in pre COVID-19 period (year 2019) was attributed to low emphasis on the work of the CHVs in the pre COVID-19 period. However, there was a great improvement in CHVs' work output reporting in subsequent years as COVID-19 enhanced the role of the CHVs. The findings agreed with those of Bhaumik *et al.* (2020) and Razu *et al.* (2021) who also observed lower work output levels of CHVs reported during the pre-COVID-19 period as compared to during the COVID-19 pandemic period. Similar observations were also made by Bezbaruah *et al.* (2021) and Musoke *et al.* (2021) who also noted poor reporting on the work output of surveyed CHVs in the periods prior to the emergence of COVID-19 pandemic, with significant improvements in reporting of the CHVs work output levels noted in the period during the COVID-19 pandemic. In all these studies, the improved reporting of CHVs' work output during the COVID-19 period was attributed to increased emphasis on CHVs' roles as a result of the pandemic.

5.3 Conclusions

Based on the findings of the study, the researcher drew the following conclusions:

1. The performance of CHVs remained steady during the COVID-19 pandemic denoting resilience and a stronger component of health care delivery.

2. Belonging to a social support group and appreciation of CHVs efforts by the community constituted the enablers of community health volunteers in Machakos County during the COVID-19 pandemic.
3. Poor remuneration in form of little and irregularly paid stipend, inadequate facilitation and lack of support and recognition were the leading challenges experienced by CHVs in Machakos County during the COVID-19 pandemic.

5.4 Recommendations

Community health strategy through the CHVs remained effective and stable during the period as shown by the improved output indicators and needs strengthening to sustain community health care services during future pandemics.

There is a need for sensitization of the community on the important roles played by the CHVs so as to improve the recognition and appreciation of CHVs by the community.

Adequate remuneration as a form of institutional support is paramount in the motivation and strengthening of the role of CHVs in the community especially during pandemics.

5.5 Suggested Areas for Further Studies

Since the current study explored the enablers and challenges faced by community health volunteers in Machakos County during the COVID-19 pandemic; a wider study involving other counties in the country is hereby recommended. This will facilitate a broader comparison and generalization of the study findings. Further, an investigation on the work-related support needs for community health volunteers in the country would equally be informative.

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APPENDICES

Appendix I: Informed Consent Form

Title of the study: Assessing the enablers and challenges on performance of community health volunteers during the COVID 19 pandemic: a mixed-methods study of Machakos County.

Principal Investigator and institutional affiliation: Ann Wanyaga Mwaniki, Cell: 0724699963, Email: wanyagamwaniki@students.uonbi.ac.kethe University of Nairobi.

First Supervisor: Dr. Lucy Bitok, Cell: 0710499700, Email: lukibitok@uonbi.ac.ke, The University of Nairobi.

Second Supervisor: Dr. Angeline Chepchirchir Kirui, Cell: 0720440665, Email: chepchirchir@uonbi.ac.ke , The University of Nairobi

Introduction to the study: My name is Ann Wanyaga Mwaniki a student at the University of Nairobi pursuing a Master of Science Degree in Community Health Nursing. I am carrying out a study on: assessing the enablers and challenges on performance of community health volunteers during the COVID-19 pandemic: a mixed method study of Machakos County. You are kindly asked to voluntarily participate in this study by answering questions read out to you by the interviewer.

The purpose of the study: To assess the enablers and challenges on performance of community health volunteers during the COVID-19 pandemic in Machakos County, Kenya.

Time: The questionnaire is simplified and it will approximately take 20 minutes.

Benefit of the study: There are no monetary or financial incentives for your participation in this study. However, the data gathered will aid in informing on the challenges faced by CHVS and the enablers available to help in improving the community health strategy. The cost of transport you incur to participate in this study shall be refunded.

Risks and discomfort: Aside from time taken to participate in the interview (about 20 minutes), no other risks are foreseen. You are free to skip any question you are not ready to answer. You may also opt out of this study at any stage without any penalty.

Confidentiality: The information provided will be kept private. No names will be used to identify you. We shall use unique identifiers and conceal your name to maintain confidentiality. The questionnaires will be kept in a locked cabinet during the period of study.

Voluntary participation and withdrawal: Your participation is entirely voluntary. You have a right to change your mind midway and you shall not suffer any consequence whatsoever.

Sharing of the results: The results of this study may be presented during scientific and academic forums and maybe published in scientific medical journals. The results will also be shared with the county government of Machakos, department of health and emergency services. The results of this study will be shared anonymously.

Participant's consent

I confirm that the researcher has explained fully the details of the study and the activities that I will undertake. I confirm that I have been given an opportunity to evaluate and ask questions about this study. I understand that my participation is voluntary and that I may withdraw at any time during the study without having to give a reason. I agree to take part in the study.

Signed by participant_____ Date_____

In case you have any further questions about this study do not hesitate to contact me on **0724699963** or the Kenyatta National Hospital-University of Nairobi Ethics Research Committee Secretariat on Tel no 2726300 ext 44102, uonknh_erc@uonbi.ac.ke.

Thank you for sparing your time to participate in this study.

Researcher's statement

Interviewer: I certify that the purpose, the potential benefits and risks associated with participating in this study have been explained to the participant and the participant has consented to participate.

Signature_____ Date_____

Appendix II: Questionnaire

Serial No_____

Subcounty_____Ward_____Community Health Unit_____

Introduction

Through this questionnaire, your responses will be useful in the analysis of your experiences during the COVID 19 pandemic. Tick appropriately and write explanations where you are required to.

SECTION A: Socio-demographic data

1. Sex

(a) Male [ ]

(b) Female [ ]

2. Age

a) Under 20 years [ ]

b) Age range 20-29 years [ ]

c) Ages 30-39 years [ ]

d) 40-49 years [ ]

e) 50 years and above [ ]

3. Marital status

a) Single [ ]

b) Married [ ]

c) Widowed/Separated [ ]

4. Level of education

(a) Primary Completed [ ]

(b) Primary Incomplete [ ]

(c) Secondary Completed [ ]

(d) Secondary Incomplete [ ]

(e) Tertiary education [ ]

5. How long have you worked as a CHV?

(a) Six months or less[ ]

(b) Six months to one year [ ]

(c) 1 to 2 years [ ]

(d) 3 to 4 years [ ]

(e) Over 5 years [ ]

SECTION B. Work output

6. How many households did you visit last month?

a) Between 1 and 5 [ ] b) Between 6 and 10 [ ]

c) Between 11 and 15 [ ] d) Between 16 and 20 [ ]

e) Between 21 and 25 [ ] f) Above 26 [ ]

7: How many health education forums did you conduct last month?

a) None ever[ ] b) Only one [ ]

c) From two to four [ ] d) From five and above [ ]

8: How many barazas did you address last month?

a) None [ ] b) Only one [ ]

c) Two to four [ ] d) Five and above [ ]

9: How many CHVs meetings do you attend in a month?

a) None ever [ ] b) Only once [ ]

c) Two to four [ ] d) Five and above [ ]

10: How many clients did you refer last month?

a) None [ ] b) Only one [ ]

c) Two to five [ ] d) Six and above [ ]

SECTION C: Challenges faced by CHVs during the COVID 19 pandemic

11. Do you believe CHVs in your area have faced any challenges thus far?

Yes [ ] No [ ]

Could you please tell me which ones?_____

12. Have you encountered any difficulties with the following?

a) Inadequate or delayed stipends? Yes [ ] No [ ]

Please explain_____

b) A Social stigma? Yes [ ] No [ ]

Please explain_____

c) Concerns about contracting Covid 19? Yes [ ] No [ ]

Please explain_____

d) Is there Community opposition? Yes [ ] No [ ]

Please explain_____

e) Inadequate or unsupportive supervision? Yes [ ] No [ ]

Please explain_____

f) Inadequate on job training? i. Yes [ ] ii. No [ ]

Please explain_____

g) Excessive workload? Yes [ ] No [ ]

Please explain_____

h) Difficulties in transport? Yes [ ] No [ ]

Please explain_____

i) Lack of tools and materials? Yes [ ]. No [ ]

Please explain_____

13. What other difficulties have you faced in your work as a CHV so far?_____

SECTION D: Enablers of CHVs during the COVID 19 pandemic

14. Do you have priority access to health services? Yes [ ] No [ ]

Please explain_____

15. Do you belong to a social support group in your community? Yes [ ] No [ ]

Which one if any?_____

16. Does it help you in your responsibilities? _____

If not, why? _____

17. Do you believe the community appreciates your efforts? Yes [ ] No [ ]

If so, how?_____

If not, why do you believe so?_____

18. Do you receive any social support from the community? Yes [ ] No [ ]

Please describe them_____

19. Do you receive monetary compensation for your role? Yes [ ] No [ ]

Please outline them_____

End

Thank you for participating.

Appendix III: FGD Guide

Instructions to interviewers

Introduce yourself to the group. Be ready to take notes.

Allow the group members to introduce themselves too.

Tell them what the study is about and how long the discussion will take. Seek their consent to continue. Maintain eye contact with the respondents. Start the recording.

When the interview is over, replay the recording to allow any alterations from the respondents.

SECTION A: THE QUESTIONS

CHVs have access to organizational resources.

1. Were you successful in any instance in your role during the pandemic?

Please explain?

What factors played a role in your success?

2. Are CHVs' individual efforts recognized?

Could you please tell me how?

3. Is the input of CHWs valued?

If so, are these points of view supported?

How?

CHVs' Difficulties

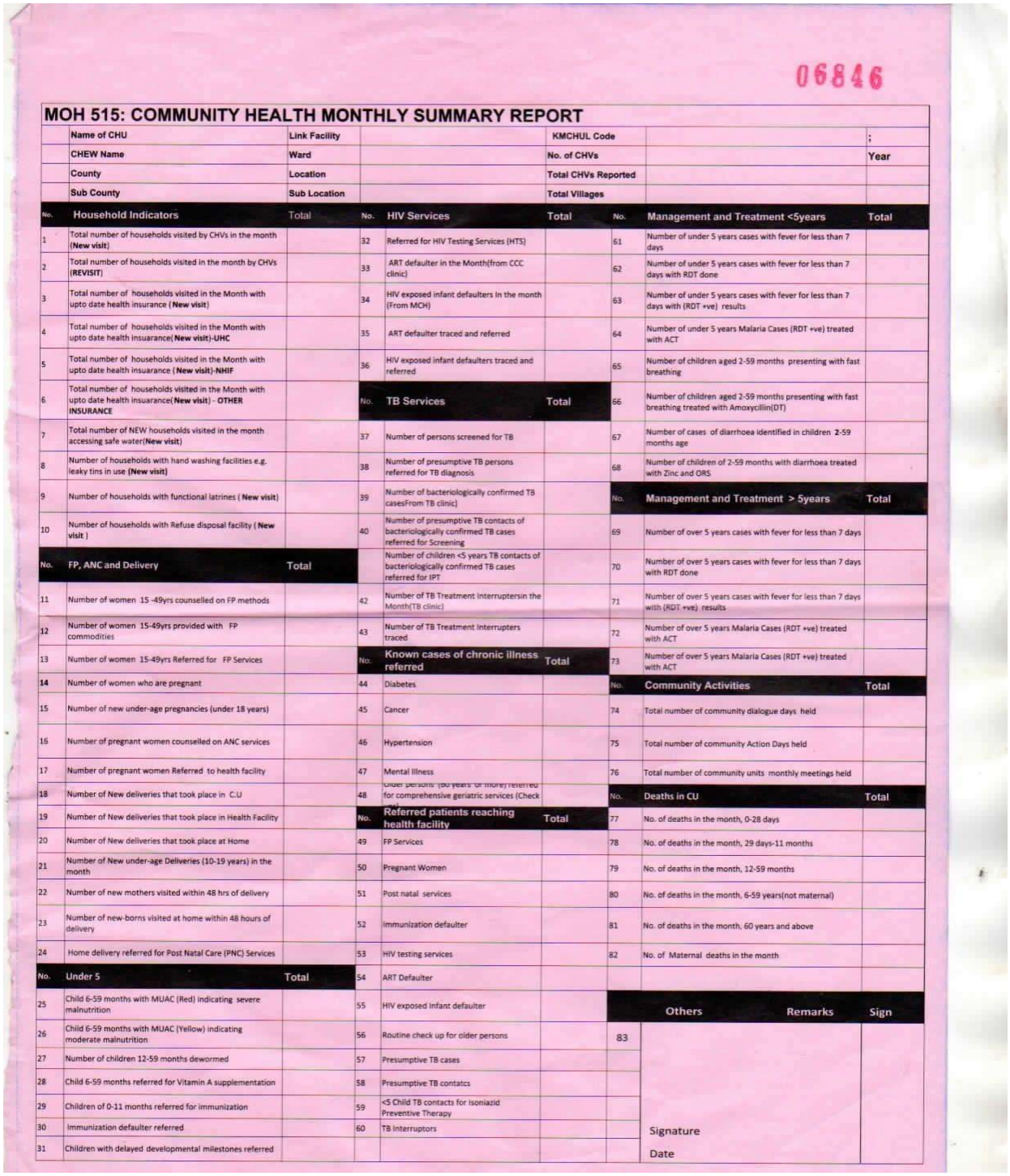
4. Have you faced any difficulties thus far?

Please let me know which ones.

5. Which of the aforementioned challenges, in your opinion, is the most pressing?

Tell me why you believe that.

Appendix IV: MOH 515: Community Health Monthly Summary Report



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MOH 515: COMMUNITY HEALTH MONTHLY SUMMARY REPORT

	Name of CHU	Link Facility		KMCHUL Code	;
	CHEW Name	Ward		No. of CHVs	Year
	County	Location		Total CHVs Reported	
	Sub County	Sub Location		Total Villages	

No.	Household Indicators	Total
1	Total number of households visited by CHVs in the month (**New visit**)	
2	Total number of households visited in the month by CHVs (**REVISIT**)	
3	Total number of households visited in the Month with upto date health insurance (**New visit**)	
4	Total number of households visited in the Month with upto date health insuarance(**New visit**)-**UHC**	
5	Total number of households visited in the Month with upto date health insuarance (**New visit**)-**NHIF**	
6	Total number of households visited in the Month with upto date health insuarance(**New visit**) - **OTHER INSURANCE**	
7	Total number of NEW households visited in the month accessing safe water(**New visit**)	
8	Number of households with hand washing facilities e.g. leaky tins in use **(New visit)**	
9	Number of households with functional latrines (**New visit**)	
10	Number of households with Refuse disposal facility (**New visit**)	

No.	FP, ANC and Delivery	Total
11	Number of women 15 -49yrs counselled on FP methods	
12	Number of women 15-49yrs provided with FP commodities	
13	Number of women 15-49yrs Referred for FP Services	
14	Number of women who are pregnant	
15	Number of new under-age pregnancies (under 18 years)	
16	Number of pregnant women counselled on ANC services	
17	Number of pregnant women Referred to health facility	
18	Number of New deliveries that took place in C.U	
19	Number of New deliveries that took place in Health Facility	
20	Number of New deliveries that took place at Home	
21	Number of New under-age Deliveries (10-19 years) in the month	
22	Number of new mothers visited within 48 hrs of delivery	
23	Number of new-borns visited at home within 48 hours of delivery	
24	Home delivery referred for Post Natal Care (PNC) Services	

No.	Under 5	Total
25	Child 6-59 months with MUAC (Red) indicating severe malnutrition	
26	Child 6-59 months with MUAC (Yellow) indicating moderate malnutrition	
27	Number of children 12-59 months dewormed	
28	Child 6-59 months referred for Vitamin A supplementation	
29	Children of 0-11 months referred for immunization	
30	Immunization defaulter referred	
31	Children with delayed developmental milestones referred	

No.	HIV Services	Total
32	Referred for HIV Testing Services (HTS)	
33	ART defaulter in the Month(from CCC clinic)	
34	HIV exposed infant defaulters In the month (From MCH)	
35	ART defaulter traced and referred	
36	HIV exposed infant defaulters traced and referred	

No.	TB Services	Total
37	Number of persons screened for TB	
38	Number of presumptive TB persons referred for TB diagnosis	
39	Number of bacteriologically confirmed TB casesFrom TB clinic)	
40	Number of presumptive TB contacts of bacteriologically confirmed TB cases referred for Screening	
	Number of children <5 years TB contacts of bacteriologically confirmed TB cases referred for IPT	
42	Number of TB Treatment interruptersin the Month(TB clinic)	
43	Number of TB Treatment Interrupters traced	

No.	Known cases of chronic illness referred	Total
44	Diabetes	
45	Cancer	
46	Hypertension	
47	Mental Illness	
48	Older persons (60 years or more) referred for comprehensive geriatric services (Check	

No.	Referred patients reaching health facility	Total
49	FP Services	
50	Pregnant Women	
51	Post natal services	
52	Immunization defaulter	
53	HIV testing services	
54	ART Defaulter	
55	HIV exposed infant defaulter	
56	Routine check up for older persons	
57	Presumptive TB cases	
58	Presumptive TB contatcs	
59	<5 Child TB contacts for Isoniazid Preventive Therapy	
60	TB Interruptors	

No.	Management and Treatment <5years	Total
61	Number of under 5 years cases with fever for less than 7 days	
62	Number of under 5 years cases with fever for less than 7 days with RDT done	
63	Number of under 5 years cases with fever for less than 7 days with (RDT +ve) results	
64	Number of under 5 years Malaria Cases (RDT +ve) treated with ACT	
65	Number of children aged 2-59 months presenting with fast breathing	
66	Number of children aged 2-59 months presenting with fast breathing treated with Amoxycillin(DT)	
67	Number of cases of diarrhoea identified in children 2-59 months age	
68	Number of children of 2-59 months with diarrhoea treated with Zinc and ORS	

No.	Management and Treatment > 5years	Total
69	Number of over 5 years cases with fever for less than 7 days	
70	Number of over 5 years cases with fever for less than 7 days with RDT done	
71	Number of over 5 years cases with fever for less than 7 days with (RDT +ve) results	
72	Number of over 5 years Malaria Cases (RDT +ve) treated with ACT	
73	Number of over 5 years Malaria Cases (RDT +ve) treated with ACT	

No.	Community Activities	Total
74	Total number of community dialogue days held	
75	Total number of community Action Days held	
76	Total number of community units monthly meetings held	

No.	Deaths in CU	Total
77	No. of deaths in the month, 0-28 days	
78	No. of deaths in the month, 29 days-11 months	
79	No. of deaths in the month, 12-59 months	
80	No. of deaths in the month, 6-59 years(not maternal)	
81	No. of deaths in the month, 60 years and above	
82	No. of Maternal deaths in the month	

	Others	Remarks	Sign
83			

Signature

Date

Appendix V: Letter to Ethics Research Committee

Ann Wanyaga Mwaniki,
Reg. No. H56/37573/2020,
Department of Nursing Sciences,
Faculty of Health Sciences,
The University of Nairobi.
19/7/2022.

The Secretary,
KNH/UoN Ethics Research Committee
P.O Box 20723- 00202,
Nairobi.

Dear Sir/Madam,

RE: Review of my Research Protocol entitled "Assessing the enablers and challenges on performance of community health volunteers during the COVID-19 pandemic: a mixed-method study of Machakos County, Kenya".

My name is Ann Wanyaga Mwaniki, a master's student at the University of Nairobi, Department of Nursing Sciences, undertaking a Master of Science in Nursing degree in Community Health. I hereby request your review and approval of my attached research protocol as a requirement in partial fulfillment for the award of the degree of Master of Science in Nursing.

Thank you in advance.

Yours faithfully,

Ann Wanyaga Mwaniki

Appendix VI: Introduction Letter

Ann Wanyaga Mwaniki,
P.O BOX, 695-90131,
Tala.
Cell: 0724699963
19/7/2022.

The Director,
Medical Services,
County Government of Machakos
Machakos.

Dear Sir/Madam,

RE: Authority to Carry Out a Research Study at Machakos County

My name is Ann Wanyaga Mwaniki, a student at the University of Nairobi, Faculty of Health Sciences, Department of Nursing Sciences, registration number H56/37573/2020. I am pursuing a Master of Science in Nursing degree in Community Health. I am undertaking a research study on "Assessing the enablers and challenges on performance of community health volunteers during the COVID-19 pandemic: a mixed-method study of Machakos county", as a requirement of the said degree.

I hereby request your permission to conduct the research which will include interacting with community health volunteers in Mwala sub county for pretesting the tools and then Yatta, Masinga, Athi River and Machakos sub-counties for the actual data collection. I also seek to review the data collected by community health volunteers from January 2019 to December 2020 from the department of health records

Attached find a copy of the Ethics Research Committee approval. Thank you in advance.

Yours faithfully,

Ann Wanyaga Mwaniki

Appendix VII: Approval Letter from KNH-UoN ERC

UNIVERSITY OF NAIROBI
FACULTY OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
Tel:(254-020) 2726300 Ext 44355

KNH-UON ERC
Email: uonknh_erc@uonbi.ac.ke
Website: http://www.erc.uonbi.ac.ke
Facebook: https://www.facebook.com/uonknh.erc
Twitter: @UONKNH_ERC https://twitter.com/UONKNH_ERC

KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/311

23rd August, 2022

Ann Wanyaga Mwaniki
Reg. No. H56/37573/2020
Dept. of Nursing Sciences
Faculty of Health Sciences
University of Nairobi

Dear Ann

RESEARCH PROPOSAL: ASSESSING THE ENABLERS AND CHALLENGES FACED BY COMMUNITY HEALTH VOLUNTEERS DURING THE COVID 19 PANDEMIC: A MIXED – METHOD STUDY OF MACHAKOS COUNTY (P315/04/2022)

This is to inform you that KNH-UoN ERC has reviewed and approved your above research proposal. Your application approval number is **P315/04/2022**. The approval period is 23rd August 2022 – 22nd August 2023.

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by KNH-UoN ERC.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KNH-UoN ERC 72 hours of notification.
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH-UoN ERC within 72 hours.
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to KNH-UoN ERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

DR. BEATRICE K.M. AMUGUNE
SECRETARY, KNH-UoN ERC

c.c. The Dean, Faculty of Health Sciences, UoN
The Senior Director, CS, KNH
The Chairperson, KNH- UoN ERC
The Chair, Dept. of Nursing Sciences, UoN
Supervisors: Dr. Lucy Kivuti-Bitok, Dept of Nursing Sciences, UoN
Dr. Angeline Chepchirchir Kirui, Dept of Nursing Sciences, UoN

Appendix VIII: Approval Letter from Machakos County

REPUBLIC OF KENYA

GOVERNMENT OF MACHAKOS COUNTY
DEPARTMENT OF HEALTH AND EMERGENCY SERVICES
Office of the County Director of Medical Services

Telephone: +254-44-20575
Fax: 254-44-20655

Machakos Highway
P.O. Box 2574-90100
Machakos, Kenya

Ref No. MKS/DHES/RSCH/VOLI/236

23rd September 2022

Dear Ms Wanyaga,

RE: LETTER OF AUTHORIZATION FOR CONDUCTING PROPOSED RESEARCH

The Department of Health and Emergency Services, Machakos County is keen to collaborate in your study titled, ***"Assessing the enablers and challenges faced by community health volunteers during the COVID-19 pandemic: A mixed-method study of Machakos County."***

Note is taken of the letter of Ethical clearance from KNH-UoN ERC, **REF: P315/04/2022** for the approval period **23rd August 2022 to 22nd August 2023** as well as the Research License from the National Commission for Science, Technology & Innovation number **NACOSTI/P/22/20237** for the period ending **22nd September 2023**.

You are hereby authorized to proceed with the research in Machakos County and urged to share the findings with the Department of Health and Emergency Services; Machakos County, through this Email: research.dhes@gmail.com

Sincerely,

DIRECTOR
23 SEP 2022
DEPARTMENT OF HEALTH & EMERGENCY SERVICES
DEPARTMENT OF MACHAKOS COUNTY

Dr. Sharon Mweni
County Director Medical Services & Research.
MACHAKOS COUNTY

Cc:
County Executive Committee Member – Health
Chief Officer – Medical Services
Chief Officer – Public health & Community Outreach

Appendix IX: Research Permit from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **776316**

Date of Issue: **22/September/2022**

RESEARCH LICENSE

This is to Certify that Ms.. Ann Wanyaga Mwaniki of University of Nairobi, has been licensed to conduct research in Machakos on the topic: ASSESSING THE ENABLERS AND CHALLENGES FACED BY COMMUNITY HEALTH VOLUNTEERS DURING THE COVID 19 PANDEMIC: A MIXED-METHOD STUDY OF MACHAKOS COUNTY for the period ending : 22/September/2023.

License No: **NACOSTI/P/22/20237**

776316

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

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

CONDITIONS

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

National Commission for Science, Technology and Innovation
off Waiyaki Way, Upper Kabete,
P. O. Box 30623, 00100 Nairobi, KENYA
Land line: 020 4007000, 020 2241349, 020 3310571, 020 8001077
Mobile: 0713 788 787 / 0735 404 245
E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke
Website: www.nacosti.go.ke

Appendix X: Work Plan

ACTIVITY	Jan-April 2022	April 2022	April-August 2022	September 2022	October 2022	November 2022	December 2022
Proposal development	■						
Proposal submission		■					
ERC Approval			■				
Data collection				■			
Data analysis					■		
Report writing and submission						■	
Dissemination of findings and publishing							■

Appendix XI: Budget

ITEM	UNIT COST (Kshs.)	QUANTITY	TOTAL (Kshs.)
Proposal and questionnaire development			
Pens	**10.00**	**7**	**70.00**
Pencils	**10.00**	**5**	**50.00**
Laptop	**50,000.00**	**1**	**50,000.00**
Jk papers ream	**600.00**	**2**	**1,200.00**
Files	**100.00**	**5**	**500.00**
Flash disks	**2,000.00**	**2**	**4,000.00**
Internet			**15,000.00**
Photocopying	**5.00**	**1000**	**5,000.00**
Printing	**10.00**	**1000**	**10,000.00**
Binding	**100.00**	**10**	**1,000.00**
ERC Approval	**2,000.00**	**1**	**2,000.00**
Sub-total			**88,820**
Data Collection and Analysis			
Questionnaire, FGD guide printing and photocopying	**15.00**	**300.00**	**4,500.00**
Principal Investigator costs	**20,000.00**	**1**	**20,000.00**
Supervision cost	**15,000.00**	**2**	**30,000.00**
Research assistants	**10,000.00**	**2**	**20,000.00**
Data entry and cleaning	**15,000.00**	**1**	**15,000.00**

Statistician	**25,000.00**	**1**	**25,000.00**
Sub-total			**114,500**
Thesis Development			
Printing	**10.00**	**1000**	**10,000.00**
Binding	**100.00**	**30**	**3,000.00**
Photocopying	**5.00**	**1000**	**5,000.00**
Sub-total			**18,000.00**
Other Expenses			
Traveling reimbursement	**300.00**	**20**	**6,000.00**
Venue Hire for focused group discussions	**3,000.00**	**1**	**3,000.00**
Internet			**10,000.00**
Airtime			**5,000.00**
Sub-total			**24,000.00**
Sum Total			**227,320.00**
Contingency (10%)			**22,732.00**
Grand total			**250,052.00**