



ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF SOCIAL WORK

**CORE ROLES AND COMPETENCES CHANGE OF COMMUNITY HEALTH
WORKERS DURING COVID-19 PANDEMIC: THE CASE OF THE AFRICA
CENTRE FOR DISEASE CONTROL AND PREVENTION, AFRICAN UNION
COMMISSION**

BY

TAMBE HELEN OTANG

ID NO. SGS/O720/2012A

JANURAY, 2022

ADDIS ABABA, ETHIOPIA



ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

**CORE ROLES AND COMPETENCES CHANGE BY COMMUNITY HEALTH
WORKERS DURING COVID-19 PANDEMIC: THE CASE OF THE AFRICA
CENTRE FOR DISEASE CONTROL AND PREVENTION, AFRICAN UNION
COMMISSION**

BY

TAMBE HELEN OTANG

ID NO. SGS/0720/2012A

ADVISOR

TILAHUN TEFERA (PHD)

**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF
GRADUATES' STUDIES IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF SOCIAL WORK**

JANUARY, 2022

ADDIS ABABA, ETHIOPIA



ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF SOCIAL WORK

**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF
GRADUATES' STUDIES IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF SOCIAL WORK**

BY: TAMBE HELEN OTANG

ID NO. SGS/0720/2012A

APPROVED BY BOARD OF EXAMINERS

Dean, Graduate Studies

Signature and Date

Advisor

Signature and Date

Internal Examiner

Signature and Date

External Examiner

Signature and Date

ENDORSEMENT

This thesis has been submitted to St. Mary's University School of Graduate Studies for examination with my approval as a university advisor.

Tilahun Tefera (PHD)

Signature & date

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Tilahun Tefera (Ph.D.) my thesis advisor. All sources of materials used for the thesis have been properly acknowledged, I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Tambe Helen Otang

St Mary's University, Addis Ababa

Signature & Date

ACKNOWLEDGEMENT

My foremost praise goes to my Almighty Lord who has tremendously helped me all through my life and to this date.

Next, I am grateful to my advisor, Tilahun Tefera (PhD.), for his constructive feedbacks and support. My appreciation also goes to Dr. Wondemagegn Chekol (PhD) and for his constructive inputs. My special thanks go to my sister, H.E. Prof Sarah Anyang Agbor, Commissioner of HRST, AUC, and the rest of my family for their energy filling and encouraging words.

I also thank the participants of the research for their time and willingness. In this regard, I would also like to extend my special appreciation to Dr. Mohammed Abdulaziz, Head of Division, Disease Control and Prevention | Ag Head of Division, Surveillance, The Africa Centres for Disease Control and Prevention (Africa CDC), African Union Commission.

Table of Contents

Acknowledgement	i
Lists of Tables.....	v
List of Figures	vi
Acronyms.....	vii
Abstract.....	viii
CHAPTER ONE: INTRODUCTION.....	1
1.1. Background of the study	1
1.2. Statement of the Problem.....	2
1.3. Research Questions.....	5
1.4. Objectives of the Study.....	5
1.4.1. General Objective	5
1.4.2. Specific Objectives	5
1.5. Scope of the study.....	5
1.6. Significance of the study.....	6
1.7. Limitation of the Study	6
1.8. Operational Definitions of Concepts and Terms	7
1.9. Thesis Structure	8
CHAPTER TWO: REVIEW OF LITERATURES	9
2.1. Theory on Pandemic	9
2.1.1. The COVID-19 Pandemic and Conspiracy Beliefs	9
2.2. Empirical Literature	11
2.2.1. Community Health Workers	11
2.2.2. The History of CHWs	11
2.2.3. Overview of the Community Health Worker Core Consensus Project	13
2.2.4. CHW Roles in Organizations	13
2.2.5. Factors Influencing Performance of CHWs.....	14
2.2.6. Roles of CHWs in COVID 19 Vaccination Layout.....	16
2.2.7. CHW Core Roles (Consensus (C3) Project) in Response to COVID 19	17
2.2.8. CHW Skills Performance.....	20
2.3. Conceptual Framework.....	21
CHAPTER THREE: RESEARCH METHODOLOGY	24
3.1. Description of Study Area	24
3.2. Research Design.	25

3.3. Research Methods.....	26
3.3.1. Observations	26
3.3.2. Key Informant Interviews (KIIs).....	26
3.3.3. Document Analysis.....	26
3.3.4. In-Depth Interviews (IDIs)	26
3.4. Sampling procedures.....	27
3.4.1. Sample Size.....	27
3.5. Data Analysis.....	27
3.6. Ethical Consideration.....	28
CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION	29
4.1. Characteristics of CHWs from Similar across Study Sites.....	30
4.2 Impact of COVID-19 on CHW Core Roles.....	32
4.3 CHW Skills; Pre and Since the COVID-19 Pandemic Began.	38
4.2.1 CHW Skills Since COVID 19 pandemic.....	40
4.3. CHW Responsibilities Before and During COVID 19 Pandemic.	42
4.4.CHW Qualities, Pre and Since COVID 19 Began.....	45
4.5. CHW Training/ Guidance on COVID 19	46
4.6. CHWs Activities on COVID 19	48
4.7. Factors that Promote the Effectiveness of the CHWs in the Community in Response to the Pandemic	50
4.8. CHWs Giving Specific Advice on Prevention and Treatment.	52
4.9. CHWs who Experienced Hospitality or Mistreatment	54
4.10. CHW Challenges During COVID 19 Response.....	54
4.11. CHWs Receiving Personal Protective Equipment (PPE).....	56
4.12. Personal Impact of Covid-19 Pandemic	58
4.13. Increased Risk of Severe Illness to COVID 19.	60
4.14. Proximity to a Person who Tested Positive for COVID 19.....	61
4.15. CHW Work Setting Pre and Since COVID 19 Pandemic	63
4.16. CHWs Employer/ Organization Pre and Since Covid 19 pandemic	64
4.17. Average Paid and Unpaid Hours Worked as a CHW Before and Since COVID 19.....	65
4.18. Integration and Connection with Workforce.	66
4.19. Level of Professional Burnout	67
4.22. CHW Effect of state of COVID 19 on Job Execution.....	68
4.22. Employer Support during the Pandemic.....	70

4.23. Population Served Before & Since COVID-19.....	72
4.24. Community wellbeing Before and Since COVID 19	74
4.25. Key community health worker Roles in the COVID-19 Vaccines Rollout.....	75
4.26. Community Concerns on COVID 19	76
4.27 Training Resources on COVID 19 by CHWs.....	80
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS	84
5.1. Conclusion	84
5.2. Recommendations.....	85
References.....	86
Appendix A.....	96
Survey Methodology for Replication	96
Appendix B Consent Form	98
Appendix C.....	99
Questionnaire.....	99

Lists of Tables

Table 1:CHW roles, skills and qualities during COVID 19 pandemic	21
Table 2: Profile of research participants.....	25
Table 3: Characteristics of CHWs from similar across study sites	30
Table 4: CHW qualities, Pre and Since COVID 19 Began.	45
Table 5: CHW Training/ Guidance on COVID 19.....	46
Table 6: CHWs Activities on COVID 19.....	48
Table 7: CHW Challenges During COVID 19 Response.....	55
Table 8: Percentage of CHWs Receiving personal protective equipment (PPE)	56
Table 9: Average Paid and Unpaid Hours Worked as a CHW Before and Since COVID 19.....	65
Table 10: Community wellbeing Before and Since COVID 19	74

List of Figures

<i>Figure 1. Community Health Worker Performance Measurement Framework.....</i>	<i>23</i>
<i>Figure 2. Community health worker roles performance frequency before pandemic began.....</i>	<i>33</i>
<i>Figure 3. Community health worker roles since COVID 19 pandemic.....</i>	<i>35</i>
<i>Figure 4. Community health worker skills perform frequency before COVID 19</i>	<i>38</i>
<i>Figure 5. Community health worker skills since pandemic.....</i>	<i>40</i>
<i>Figure 6. CHW responsibilities before and during COVID 19 pandemic</i>	<i>43</i>
<i>Figure 7. Factors that promote the effectiveness of CHWs in the community in response to the pandemic. 51</i>	
<i>Figure 8. Percentage of CHWs on specific advice on prevention and treatment</i>	<i>52</i>
<i>Figure 9. CHWs who experienced hospitality and mistreatment</i>	<i>54</i>
<i>Figure 10. Personal impact of COVID 19 on CHWs</i>	<i>58</i>
<i>Figure 11. Increased Risk of Severe Illness to COVID 19</i>	<i>60</i>
<i>Figure 12. Proximity to person who tested positive for COVID 19</i>	<i>62</i>
<i>Figure 13. Work setting before and since COVID 19.</i>	<i>63</i>
<i>Figure 14. Types of CHWs Employer/ Organization Pre and Since Covid 19 pandemic</i>	<i>64</i>
<i>Figure 15. Integration and connection with workforce.....</i>	<i>66</i>
<i>Figure 16. Level of professional burnout</i>	<i>67</i>
<i>Figure 17. Effect of state of COVID 19 on job execution.....</i>	<i>69</i>
<i>Figure 18. Employer support during the pandemic</i>	<i>70</i>
<i>Figure 19. Population served before and since COVID 19</i>	<i>72</i>
<i>Figure 20. CHW roles during COVID 19 vaccination rollout</i>	<i>75</i>
<i>Figure 21. Communities' access to health care responses</i>	<i>77</i>
<i>Figure 22. Access to resources response.....</i>	<i>78</i>
<i>Figure 23. Health issues Reponses.....</i>	<i>78</i>
<i>Figure 24. Most common issues face by community members during the pandemic.....</i>	<i>79</i>
<i>Figure 25. What are the most concerning faced by covid 19?</i>	<i>79</i>
<i>Figure 26. Community health worker likelihood to take a CHW COVID training.....</i>	<i>80</i>
<i>Figure 27. Topics helpful to CHWs</i>	<i>81</i>

Acronyms

ACDC	Africa Centers for Disease Control and Prevention
AEFI	Adverse events following immunization
APHA	American Public Health Association
AU	Africa Union
AUC	Africa Union Commission
CBS	Community-based surveillance
CHWs	Community Health Workers
CHR	Community health representative
CDC	Centers for Disease Control and Prevention
EIR	Electronic immunization registries
EWAR	Established early Warning, Alert and Response systems (EWAR)
EVD	Ebola Virus Disease
HCH	Healthcare for The Homeless
HCW	Health Care Worker
ICN	International Council of Nurses
IFSW	International Federation of Social Workers
MERS	Middle East respiratory syndrome
MoH	Ministry of Health
NACHWs	National Association of Community Health Workers
NCIRD	National Center for Immunization and Respiratory Diseases
NDVP	National Deployment and Vaccination Plan
NGO	Non-Governmental Organization
NPHIs	National public health institutes
NYU	New York–Presbyterian Hospital
OAU	Organization of African Unity
PACT	Partnership to Accelerate COVID-19 Testing
PPE	Personal protective equipment
SARS	Severe acute respiratory syndrome
SDOH	Social determinants of health
UNICEF	United Nations Children's Fund
WASH	water, sanitation, and hygiene
WHO	World Health Organization

Abstract

Given many healthcare systems around the world are buckling under the weight of COVID-19, the pandemic has presented significant challenges to countries with weak healthcare systems. One cadre of healthcare workers at the forefront of addressing the pandemic are Community Health Workers (CHWs), who have roles in prevention, detection and response. Therefore, the purpose of this study is to explore the roles and competency changes: How have CHW roles, skills, and qualities changed over time before and during the pandemic in Africa centers for disease control and prevention (ACDC). The study is going to be guided by the following specific objectives: discuss the evidence-based COVID-19 prevention recommendations on how individuals can help themselves, their families and communities in preventing or slowing the spread of COVID-19, to investigate the roles of CHWs in COVID 19 vaccination roll out. The study was conducted among the community health workers at Health post and Primary Health Care level health department during the pandemic of COVID-19 from Africa CDC headquarters Addis Ababa, Ethiopia. The study adopted by using mixed research approach and made use of both primary and secondary data. The primary data were collected directly from the participants through using self-administered questionnaire and secondary data were gathered from secondary sources from the ACDC annual reports, through reviewing both published and unpublished documents such as books, articles, reports and other publication. The data gathered through questionnaire survey, mostly using 5-point Likert scale items and analyzed using descriptive statistics such as frequency, percentage, mean, and standard deviation. Findings were presented using tables, charts and interpreted and discussed using qualitative narrations. Findings of the review reveal that CHWs are a critical source of education and care for their communities during emergency situations such as pandemics. CHWs are continuing their routine services, at increased capacities, in addition to providing new health information and services, such as educating households on COVID-19 prevention and treatment, contract tracing, and referring clients to facilities for testing and advanced care. There are gaps, however, in aspects of COVID-19 training and CHW knowledge of guidelines. This review recommends a more effectively functioning of Africa Centre's for Disease Control and Prevention (ACDC), including improved functions in regional coordination, epidemiologic analysis, and partnership development.

Keywords: Community health worker, COVID 19, Health workers, pandemic.

CHAPTER ONE: INTRODUCTION

1.1. Background of the study

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (WHO, 2020). The disease was first identified in 2019 in Wuhan, the capital of Hubei China, and has since spread globally, resulting in the 2019–20 coronavirus pandemic (Hui, D. S, et al, 2020). The common symptoms of Covid-19 include fever, dry cough, and difficulty in breathing but muscle pain, sputum production, diarrhea, and sore throat are less common (Centre for Disease control and Prevention, 2020). While the majority of cases result in mild symptoms, some progress to pneumonia and multi-organ failure. In the month of March 2020, the rate of deaths per number of diagnosed cases is 4.4 percent; however, it ranges from 0.2 percent to 15 percent, according to age group and other health problems (Li, et al, 2020). Until the preparation of this proposal (23 August 2021), more than 7,553,590 cases of COVID-19 have been reported in more than two hundred countries and territories, resulting in over 189,438 deaths but more than 6,649,008 people have recovered from this deadly virus (Africa CDC, 2021).

Given many healthcare systems around the world are buckling under the weight of COVID-19, the pandemic has presented significant roles, changes and challenges to countries with weak healthcare systems (The Lancet. COVID-19). One cadre of healthcare workers at the forefront of addressing the pandemic are Community Health Workers (CHWs) (Bull World Health Organ. 2016), who have roles in prevention, detection and response. The term ‘Community Health Worker’ encompasses a wide range of lay-healthcare workers and the precise nomenclature used to describe CHWs varies from region to region (Global Health Action. 2017); however, a widely accepted definition proposed by the World Health Organization (WHO) is that they ‘should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers’ (WHO; 2007 [2020 Mar 27]). Importantly, CHWs do not include ‘professional’ facility-based health workers such as doctors and nurses, or allied-healthcare professionals, such as physiotherapists or medical assistants. Similarly, the exact work of CHWs varies globally; however, they generally deliver healthcare services in the community focused on integrated maternal and child health services, but more recently their scope of work has increased to include services focused on non-communicable diseases. Their work is also wide ranging and not only focuses on disease prevention and management, but also on ‘community development activities, referrals, recordkeeping and collection of data on vital event(s)’ (WHO.2020).

The first Community Health Workers (CHWs) were “Farmer Scholars” who were trained in China in the 1930s and were the forerunners of the Barefoot Doctors, of whom there were more than one million from the 1950s to the 1970s. In the 1960s and 1970s, small CHW programs began to emerge in various countries, particularly in Latin America. The experience from CHW programs predating the 1970s provided the inspiration for much larger CHW programs in many low-income countries in the 1980s. Following the failure of many of the programs in the 1980s and 1990s, new highly successful programs have emerged and, at present, as a result of research findings demonstrating the effectiveness of community-based programs in improving child health in particular, there is now a resurgence of interest and growth of CHW programs around the world.

Community Health Workers engage in a variety of roles to bridge the gap between patient and provider and to address health disparities. The shift in our healthcare system from rewarding providers for the volume of care provided to a value-based healthcare system, in which providers are rewarded for the quality care, has incentivized providers to find creative strategies to improve healthcare delivery (Jack et al., 2016; Centers for Medicare & Medicaid Services (CMS, 2020). A value-based healthcare structure also supports improved care for individual patients and lower healthcare costs (CMS, 2020). The CHW model is often used to help reduce costs by managing chronic conditions to decrease hospital readmission rates and emergency department and urgent care visits (Jack et al., 2016). CHW interventions have improved overall health outcomes, as well as health outcomes for individuals with chronic 20 diseases including heart disease, diabetes, and asthma as well as cancer and HIV (Jack et al., 2016; Viswanathan et al., 2010; Kim et al., 2016).

1.2. Statement of the Problem

The novel coronavirus, also known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has brought about devastating consequences in the health, economy, social life, as well as the health infrastructure globally. First originated in the Chinese city of Wuhan in December 2019, the COVID-19 pandemic has infected over 79.2 million and killed over 1.7 million people during its 1-year surge. The effects on health outcomes could be reflected either directly through imposing morbidity and mortality or indirectly through affecting the healthcare service delivery practice to non-COVID-19 suspect patients. (Global Health Res Policy. 2020).

As the corona virus spread rapidly in China, by the end of January 2020, the World Health Organization (WHO) declared a state of emergency, announcing that the current disease had reached levels that would

threaten public health around the world (WHO, 2020b). The situation has progressed rapidly and more and more cases have been identified, including in Europe. For the first time (as of February 25, 2020), the number of cases reported in countries other than China has exceeded the number of cases in China. The World Health Organization reports the situation on a daily basis. As of April 9, 2020, 1,536,677 confirmed cases were detected world wide and 89,907 deaths occurred. Iran, Italy, Spain, France, Germany and the United States have experienced the outbreak at the highest levels after China (World meter, 2020). The Centers for Disease Control and Prevention (CDC) have developed a test to diagnose COVID-19 in respiratory and serum samples from clinical specimens and the test has begun to be used for the detection of certain cases (NIH, 2020).

Addressing CHW roles and changes on the pandemic is important in order to preserve an individual's optimal health. Healthcare professionals who are unable to care for their own physical and mental wellbeing are not fit to treat those in the hospitals. Identifying this issue and providing support may enable CHWs to deliver the best possible care amongst all their patients. Not only is it necessary to take care of those who are working the frontlines, it is also important to examine how it has affected those in the past and to use that knowledge to help treat what they are currently facing now. This fear follows many healthcare workers home due to the uncertainty of spreading COVID-19, and it is crucial to address the factors that are contributing to the stress. A study conducted on nurses working the frontlines in Wuhan have reported that their feelings of burnout were moderately negatively correlated with a lack of social support (Hu, 2020). A lack of social support was one of the important factors correlated to negative psychological outcomes. There should be proper emotional support for those struggling to balance physiological and psychological changes, as well as addressing other contributing work-related factors that can be modified in order to decrease impact level.

With the emergence of any pandemic, it should be considered to take some measures in the roles and changes that CHWs plays to prevent the pandemic from rapidly transmitting from human to human. First of all, WHO advises individuals who do not feel well in schools (such as those suffering from high fever, cough, or sore throat, etc.) to stay home and stay away from the work environment until their symptoms disappear (WHO, 2009a).

Based on the researcher observation and discussion with the Africa Centers for Disease Control and Prevention (ACDC) the following problems have been identified on the competence changes of COVID 19 on community health workers. Community Health Workers engage in a variety of roles to bridge the gap between patient and provider and to address health disparities. The shift in our healthcare system from rewarding providers for the volume of care provided to a value-based healthcare system, in which

providers are rewarded for the quality care, has incentivized providers to find creative strategies to improve healthcare delivery during the pandemic (Jack et al., 2016; Centers for Medicare & Medicaid Services (CMS), 2020). A value-based healthcare structure also supports improved care for individual patients and lower healthcare costs (CMS, 2020). The CHW model is often used to help reduce costs by managing chronic conditions to decrease hospital readmission rates and emergency department and urgent care visits (Jack et al., 2016). CHW interventions have improved overall health outcomes, as well as health outcomes for individuals with chronic 20 diseases including heart disease, diabetes, and asthma as well as cancer and HIV (Jack et al., 2016; Viswanathan et al., 2010; Kim et al., 2016).

A significant level of service delivery has been reported to be impacted, especially, during early times owing to the steady spread of the virus across all settings. Despite optimism on the cumulative effects of the pandemic in Sub-Saharan Africa compared to the developed nations, the situation had got much worse expectation of altered health service disruptions attributed to the pre-existing poor health infrastructure and system in the region. Whereas a huge number of essential services have been delayed by the healthcare facilities, (Global Health Res Policy. 2020) patients were also unable to attend follow-ups and acute care visits due to the fear and anxiety they experienced during the pandemic waves. (Int J Environ Res Public Health. 2020). Some health setups have changed their mode of service delivery to accord with preventive strategies and local policies (Arch Public Health. 2021) and preparing new protocols that maintain service and reduce contamination. (Eur J Vasc Endovasc Surg. 2020).

The status of preventive practices on coronavirus among community health workers is still unknown globally and Africa CDC generally. Filling gaps of frontline health workers means filling gaps of the communities, because they are giving care for the community daily by moving from home-to-home. This study will be a baseline for other studies as it is the first study in our continent specifically for frontline community health workers. On top of this, this study saves our scarce resources and we can easily address our community by determining the level of prevention practices of frontline health workers. The main aim of this thesis explores the roles and impact of community health workers in relation to COVID-19 in relations to CHW level of support for COVID-19 activities in Africa CDC headquarters.

This research fills the gaps in knowledge in the areas of how health workers considered to explores the roles, competences changes that affecting the performance of Community health workers during COVID-19. Employment changes, changes in roles and skills experienced by CHWs during COVID-19 pandemic, COVID-19-related training needs of CHWs, quality of life impact of CHW employment during COVID-19 pandemic and CHW perceptions of community assets and challenges during the COVID-19 pandemic.

The intent of reporting the experiences and needs of CHW respondents is to help inform current responses to COVID-19 and future public health emergency responses to CHW at ACDC.

1.3. Research Questions

The study attempted to answer the following key research questions:

1. What is the increase in roles and impact amongst community health workers due to the COVID-19 outbreak?
2. In today's competencies: What skills and qualities (collectively, competencies) do CHWs need to fulfill these roles?
3. In today's roles: What contemporary roles (scope of practice) best capture the work of CHWs during COVID 19 pandemic.
4. To what extent are CHW perceptions of community assets and challenges during the COVID-19 pandemic.
5. What are the core competencies CHWs need to be optimally effective in these roles during COVID 19?

1.4. Objectives of the Study

1.4.1. General Objective

This study aimed to explore the competency change, roles, skills, and qualities changed of CHW over time before and during the pandemic

1.4.2. Specific Objectives

The specific objectives of this study include:

- To reveal the roles of community health workers on COVID-19 outbreak.
- To understand the skills and qualities of CHWs need to fulfill their roles
- To examine the scope of practice best capture the work of CHWs during COVID 19 pandemic.
- To scrutinize the extent of CHW perceptions on community assets and challenges during the COVID-19 pandemic.
- To investigate the core competencies of CHWs need to be optimally effective in these roles during COVID 19?

1.5. Scope of the study

In line with the above objectives, the assessment was conducted in Africa Centers for Disease control and Prevention (CDC), Division of Community Health Worker at the Africa Union Commission, Addis Ababa,

Ethiopia. The findings are based on data collected from quantitative online survey questionnaires sent via emails and qualitative interviews from randomly selected Community health workers in Africa union.

1.6. Significance of the study

Since the emergence of COVID 19 in December 2019, various public health responses measures have been implemented to control the pandemic. Among measures taken by the Africa CDC was the launch of PACT initiative to accelerate COVID 19 testing. Key to the initiative is the engagement of Community Health Workers (CHWs) in risk communication and community engagement (RCCE), surveillance activities for early case identification, contacts tracing and in facilitating referrals for testing and continuum of care.

As of 31 May 2021, Through PACT support, over 17154 CHWs have been trained and locally deployed in 24 AU Member states. The PACT supported CHWs visited more than 2,568,654 households for community engagement activities, active case search and contact tracing, identified 1,618,601 Contacts, 710,167 COVID 19 suspect cases based on the standard case definition and facilitated referrals for 553053 (78%) suspect cases for testing. These efforts were crucial for early identification and isolation of cases in limiting further transmission.

Generally, CHWs are critical to the health systems in low- and middle-income countries, delivering a range of preventive, promotive, and curative services at the community level with a 1:10 return on investment. As COVID-19 has overwhelmed communities worldwide, CHWs have played a pivotal role in the response – educating communities on disease prevention measures like hand-washing and use of personal PPE, identifying and reporting disease symptoms, and monitoring contacts and suspected cases. With many health facilities stretched thin, CHWs have simultaneously been at the forefront of continuing to deliver essential health services to communities.

PACT aims to strengthen capacity to test for COVID-19 across Africa, with emphasis on countries that have only minimal capacity. This will ensure that at least 10 million Africans, who would have not been tested, get tested in the next coming months.

1.7. Limitation of the Study

By the time of this study, due to the epidemic every aspect of life has been impacted. The need for online survey was needed and most respondents took a long time to response to the emails.

Some essential CHW skills and knowledge may be enhanced by community membership or leadership. Experience-based factors like these do not lend themselves to competencies; rather, they should serve as

minimum job qualifications and can be used to assess candidates for hire. Situating the study within a competency-based education approach, writing competencies for measurable behavior, and linking the competencies to a workforce framework are significant advances for CHW workforce development.

1.8. Operational Definitions of Concepts and Terms

- Health care workers: All paid and unpaid persons serving in healthcare settings, with primary intent to enhance health, who have the potential for direct or indirect exposure to patients or their infectious secretions and materials.
- Personal protective equipment: are garments placed to protect the health care workers or any other persons to get infected. These usually consist of standard precautions: gloves, mask, and gown. If it is blood or airborne high infections, will include: Face protection, goggles and mask or face shield, gloves, gown or coverall, head cover, rubber boots.
- Community health workers (CHWs) are critical actors within community health systems and provide a range of reproductive, maternal, child, and primary health information, counseling, and services.
- Corona virus disease 19: Acute disease of the respiratory system which is caused by new CORONA virus groups identified in humans since the end of December 2019 in Chinese Wuhan.
- CHW Core Consensus (C3) Project: The C3 Project is a national effort to define CHW core roles as well as skills and qualities. The consensus scope of practice developed, which is still in early stages of release and endorsement, includes the following roles, skills and qualities and offers a single set of CHW roles and competencies for reference by those both inside and outside the field as they work to build greater support for and sustainability among CHWs in all settings. Central to the C3 Project's work was the analysis of previously accepted CHW roles and competencies from the National Community Health Advisor Study compared to current benchmark documents. This crosswalk led to the development of a contemporary list of recommended roles and competencies.
- Roles: roles are the function assumed or part played by a person or thing in a particular situation.
- Competencies: The ability to do something successfully or efficiently such as communication, teamwork, sales and customer service, leadership, problem-solving and complex thinking

1.9. Thesis Structure

This thesis is structured as follows. Chapter one focused on the background, problem statement, objectives, scope, and significance of the study, limitation, and research site selection and operational definitions of basic concepts and terminologies. Chapter two reviews the theoretical literature, empirical literature, and related studies. Chapter three discusses the methodological issues including the study area description, data collection instrument and sampling techniques, interpretation, and analysis of the study. The fourth chapter is the findings of the study. And the final chapter deal with a conclusion and recommendations.

CHAPTER TWO: REVIEW OF LITERATURES

This chapter is organized according to the following sections: the first section briefly discusses some theoretical insights of COVID 19 pandemic; the second section reviews some empirical literature on the history of CHWs, an overview of CHW core roles census project, CHWs roles in organization, factors influencing performance of CHWs. And the roles of CHWs in COVID 19 vaccination layout; and last section focuses on the conceptual framework on CHW core roles censuses project in response to the pandemic and CHW skills performance.

2.1. Theory on Pandemic

The year 2020 has been marked by the outbreak of the disease called coronavirus (COVID-19). Due to the rapid spread of this infectious respiratory illness a global pandemic emerged, which has brought tragic implications for the society. Many people have lost their lives, the everyday life has been restructured and a disruption of multiple industries has occurred (De Vos, 2020). The transmission of the virus can occur either from person to person or through droplets on surfaces that individuals might touch. Mostly, infected individuals are only experiencing mild symptoms but in some cases the infection can be life-threatening. The most frequent symptoms compatible with COVID-19 are fever, cough and shortness of breath (Harvard T.H. Chan - School of Public Health, 2020).

2.1.1. The COVID-19 Pandemic and Conspiracy Beliefs

Past research shows that the increase of conspiracy theories during a pandemic is not a new phenomenon: Especially in times of crises, conspiracy thinking increases substantially COVID-19 related Conspiracy Theories and Pandemic Behavior (e.g., Van Prooijen & Douglas, 2017). For virtually all major events over the past decades, official version of why these came about were confronted with various conspiracy allegations that proposed an explanation involving plots hatched in secret by powerful agents instead. This is also true for major outbreaks of diseases. A misinformation campaign run by the Soviet Committee for State Security claimed HIV to be a biological weapon developed by the US (Geissler & Sprinkle, 2013) and the widespread belief that AIDS is a conspiracy to kill black people has a direct impact on prevention behavior (e.g., using condoms or pre-exposure prophylaxis; e.g., Bogart & Thorburn, 2005; Bogart et al., 2010). During the Zika virus outbreak 2015-2016, there were speculations that the virus was caused by genetically modified mosquitoes or used by the governments to kill people on purpose (e.g., Klofstad et al., 2019).

Events of such magnitude beg an explanation of comparable magnitude (Leman & Cinnirella, 2007). Providing explanations is psychologically advantageous for several reasons, with one sticking out in the

previous literature: granting an illusion of control. Considering this reasoning, it is not surprising that a lack of control has been identified as one of the key drivers of conspiracy beliefs. When people are not able to gain control in the real world, they compensate for this lack by perceiving patterns - even if they are an illusion (e.g., Douglas et al., 2017). The current coronavirus crisis is an almost ideal breeding ground for

conspiracy thinking (Van Bavel et al., 2020), as there is no easily comprehensible mechanistic explanation of the disease, it is an event of massive scale, it affects people's life globally, and leaves them with lots of uncertainty.

Such conspiracy beliefs might potentially even be palliative in giving people back at least a sense of control. Nevertheless, so we argue, there are real dangers in such conspiracy theories as they might motivate problematic behavior in the current crisis. During the coronavirus pandemic, many scientists, specifically epidemiologists and physicians, have COVID-19 related Conspiracy Theories and Pandemic Behavior been the most articulate voices in making recommendations how to “flatten the curve” and slow down the infections. Conspiracy mentality, however, a generalized belief that powerful forces operate in secret to rule the world (Imhoff & Bruder, 2014) has been connected to both generalized distrust in science in general (as it is perceived as high power; Imhoff et al., 2018) and the biomedical system more specifically (for the same reason: Lamberty & Imhoff, 2018; Galliford & Furnham, 2017; Oliver & Wood, 2014). Thus, people who endorse a conspiracy worldview are particularly unlikely to trust the expert recommendations aimed at reducing infection rates.

Whereas most people use information about what others do as a cue to how to behave themselves, and thus are more likely to show conformity and follow (descriptive) social norms, there are some exceptions to this rule. Specifically, people high in a need for uniqueness, for whom it is a great importance to stick out from the crowd, are intentionally trying to not do or say what the majority of people says or does (Imhoff & Erb, 2009). This is relevant, as endorsement of conspiracy beliefs has been associated with an increased need for uniqueness both in correlational and experimental studies (Imhoff & Lamberty, 2017; Lantian et al., 2017). Thus, conspiracy believers are less likely than others to comply with descriptive social norms. Additionally, a conspiracy-prone worldview does not only reduce trust in official versions and adherence to norms, but is also linked to a stronger acceptance of violence (Rees & Lamberty, 2019). Conspiracy worldview also make it more plausible to engage in illegal, non-normative forms of action to reach one's goals as people who imagined seeing the world as people high in conspiracy mentality, saw it as more defensible to use force and other illegal means to pursue one's political goals (Imhoff et al., 2020).

Conspiracy theories that suggest that the coronavirus pandemic is a hoax are expected to primarily be related to refusal to engage in containment-related behavior (e.g., hygiene, physical distancing). Conspiracy theories that describe SARS-CoV-2 as a human manufactured virus are expected to mainly relate to more self-centered prepping behavior (e.g., alternative remedies, hoarding). Despite these divergent associations (and the logical inconsistency), we expect both conspiracy beliefs to be positively correlated and positively correlated with conspiracy mentality. All materials and data (including the supplemental study).

2.2. Empirical Literature

2.2.1. Community Health Workers

Community Health Workers (CHWs) are frontline public health workers who are trusted members of and or have an unusually close understanding of the community served. This trusting relationship enables CHWs to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery. CHWs also build individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support and advocacy.” (APHA,2009).

Aspects of the selection of community health workers, including being endorsed by and embedded within the community, were considered in the definition provided by WHO (1989). Common elements of all definitions include a focus on the entire community or population, the goals of increasing access to health and related social services within a community context and the trust CHWs receive from their communities.

2.2.2. The History of CHWs

The modern history of CHWs started in 1960’s China with the barefoot doctors, peasants trained in basic medical and preventive medicine (Zhang & Unschuld, 2008; Sidel, 1972). The 1978 Declaration of Alma Ata proposed CHW programs as a policy for promoting primary health care (World Health Organization, 1978), and contributed to CHW program expansion in the early 1980s and 1990s.

While early programs suffered set-backs due to poor planning and resource allocation (Perry & Zulliger, 2012), the 1990’s saw re-investment in large-scale programs such as Pakistan’s Lady Health Worker program launched with 8,000 CHWs in 1992 which led to a reduction in perinatal and newborn mortality (Crigler et al., 2013). The 2000’s saw renewed interest in CHWs with the launching of the United Nations Millennium Development Goals (MDGs) along with a growing body of empirical evidence supporting CHWs as an integral part of the workforce to achieve MDGs (Crigler et al., 2013).

In the United States, CHW workforce development has been marked by initial engagement in low-income and Tribal communities (1966-1972); utilization in special projects linked to university-based research (1973-1989); state and federal initiatives (1990-1998); and finally various public policy options for CHWs (1999-2006) (CHW National Workforce Study, Health Resources and Service Administration, 2007).

These included:

Community Health Representative (CHR): The CHR model began in 1968 to train Tribal health worker to provide education and navigation services for their communities, with a strong emphasis on Tribal customs and language. (National Association of Community Health Representatives, 2016).

Occupational Regulation: State credentialing legislation addressing CHWs' training standards and certification was passed in Texas in 1999, and signed into Ohio law in 2003 (US Department of Health and Human Services, 2007).

Utilization of CHWs: Many bills were passed at the state level that mandated studies of the impact, status and utilization of CHWs in health services (New Mexico Department of Health, 2003; James Madison University, 2006).

Emerging Funding Opportunity Models: A growing body of empirical evidence emerged supporting the effectiveness of CHWs interventions. Findings from a study on cancer prevention and treatment among minority groups by Brandeis University and the Center for Medicare and Medicaid Services clearly demonstrated that adding CHWs to the care team played a central role in addressing disparities in cancer prevention and treatment and had a beneficial effect on the quality of care for populations most in need of appropriate health services (Centers for Medicare and Medicaid Services, 2003). The findings of the study opened doors to additional funding opportunities for cancer patient navigator services to minority Medicare beneficiaries (US Department of Health and Human Services, 2007).

On June 29, 2005, the federal Patient Navigator Outreach and Chronic Disease Prevention Act (PL 109-18) (<https://www.congress.gov/109/plaws/publ18/PLAW-109publ18.pdf>) was signed into law helping promote and expand the emerging profession of Community Health Worker. The measure provided \$25 million for patient navigator services through community health centers over a period of five years (US Department of Health and Human Services, 2005). The law required that facilities receiving the grant agree to recruit, train, and employ patient navigators with direct knowledge of the communities they serve to provide health care services to individuals (PL 109-18, 2005).

The Patient Navigator Outreach and Chronic Disease Prevention Act was reauthorized under the Patient Protection and Affordable Care Act in 2010. The Patient Protection and Affordable Care Act (ACA) of 2010 also contains elements that have provided more funding opportunities for community health centers

and increased the number of CHWs and the number of people they serve in the US. These laws coincided with creation of an occupation code for CHWs in 2009 and official recognition of the CHWs role via their own Standard Occupational Classification (SOC#21-1094) in 2010 by the Department of Labor, Bureau of Labor Statistics.

2.2.3. Overview of the Community Health Worker Core Consensus Project

The Community Health Worker Core Consensus Project's (C3 Project) primary aims are to expand cohesion in the field and to contribute to the visibility and greater understanding of the full potential of Community Health Workers (CHWs) to improve health, community development, and access to systems of care. Importantly, the C3 Project offers a single set of CHW roles and competencies for reference by those both inside and outside the field as they work to build greater support for and sustainability among CHWs in all settings. Central to the C3 Project's work was the analysis of previously accepted CHW roles and competencies from the national community health advisor study (American Public Health Association; 2001).

Since summer 2014, the CHW C3 Project has worked to examine CHW roles, skills, and qualities among CHWs in the US. This was 20 years after the start of the NCHAS (The Final Report of the National Community Health Advisor Study) that offered a first national look at CHW core roles, skills, and qualities among several topics. (Weaving the Future, 1998). Two decades later, the C3 Project aims to offer contemporary CHW- and stakeholder-driven recommendations for national consideration and adoption related to CHW core roles, skills, and qualities. The C3 Project is a community-based research project with a focus on involving CHWs and stakeholders in the research process. (Journal of Epidemiology and Community Health. 2006;60). (The intent is to support action through information based on sound research of CHW roles, skills, and qualities. The Project included two major phases: an analysis phase and a consensus-building phase. This report provides an overview of the Project and its methods during both phases. The report then shares Project findings on core CHW roles, skills, and qualities. Findings are also referenced as "recommendations" in the report. The report ends with a discussion of potential use of the findings and discussion of both planned and potential future directions, including a wider stakeholder consensus building phase moving beyond the CHW field itself.

2.2.4. CHW Roles in Organizations

The range of services provided by CHWs depends on various factors: the intervention setting (e.g., social services, health care) (O'Brien et al., 2009), the skill level and service competencies (e.g., communication skills, cultural congruence, training, and language concordance) (Lewin et al., 2006; Andrews et al., 2004; Ursua et al., 2014), geographic location (e.g., rural communities and general medical settings) (Parker et al., 1998), and the type of service they provide to their communities (e.g., case management, advocacy,

screening, education) (California Health Workforce Alliance, 2013). For example, if CHWs are deployed in response to infectious diseases such as malaria or tuberculosis to prevent disease or improve health status of communities in rural areas, they may function as care manager or health education provider (Yeboah-Antwi et al., 2010; Mukanga et al., 2010). If, however, the intervention is designed to increase access to healthcare services and enhance the quality of coordination of health care services, the CHWs may perform care coordination as their primary role or in combination with other activities such as community outreach, case finding, and community advocacy. As a result, CHWs' roles may include but are not limited to:

Acting as liaisons between vulnerable populations and the health care team, assisting individuals with finding needed resources to manage their disease (Krieger et al., 2015; Cummings et al., 2013). Utilizing problem-solving techniques to detect and address barriers to care including financial & social factors, assisting patients/clients in setting patient-specific goals and supporting their progress and conducting outreach (e.g., in-home visits of community members with health needs). (Spencer et al., 2011).

Conducting non-communicable disease screening tests, providing immunizations (Lewin et al., 2005), giving injections to prevent disease and detect health problems at early stage; Providing cultural wellness and life coaching (e.g., eating habits, physical activities) and managing care through improving adherence to medications (Chang et al., 2010) and self-management (e.g., monitoring blood glucose) (Krieger et al., 2015; McDermott et al., 2015; Cummings et al., 2013; Prezio et al., 2013).

Advocating for health needs of vulnerable populations (e.g., insurance coverage, informing providers of barriers to disease management) (Krieger et al., 2015), providing culturally competent education on social skills (e.g., self-advocacy skills, coping skills) (Palmas et al., 2014; Krieger et al., 2015), self-management (e.g., culturally appropriate meal planning, medication use, smoking cessation) (Prezio et al., 2013), providing informal health literacy appropriate counselling (Pere-Escamilla et al., 2014), promoting family planning and distributing supplies (Bhutta et al., 2010; Simmons et al., 1988) and collecting vital statistics on community health status to help identify the health needs of a community (Bureau of Labor Statistics, 2010).

2.2.5. Factors Influencing Performance of CHWs

The performance of CHWs is influenced by a variety of factors, as shown in Table 4. These factors are the result of an extensive review of literature by Kok et al. (2014), which had the purpose of identifying intervention factors influencing CHWs motivation and performance. The main factors are as follows: 1) Trust, 2) Supervision, 3) Training, 4) Workload, 5) Clarity on CHW tasks/roles, and 6) Compensation.

Trust: The helping relationship between CHW and community involves building trust on both sides of the relationship (Glenton et al., 2013). In a review of literature on effectiveness of CHWs programs to improve adherence to antiretroviral therapy, Kenya et al. (2007) reported that building trust is a key ingredient to successfully conduct CHWs programs. CHWs that serve communities in which they live in were reported to be more trusted by the community, which can affect their occupational performance tasks (Kok et al., 2014).

Supervision: The central purpose of implementing regular supervision is to ensure that roles and responsibilities are properly exercised by CHWs, and to enhance CHWs functioning. If correctly done, adequate supervision could result in high CHWs motivation, by helping them to reach the highest possible performance level (Hill et al., 2014). Martinez et al.(2008) found that effective supervision by health workers and support from community leaders leads to increased credibility and external recognition, as well as the feeling of being part of the team. On the other hand, if done poorly or conducted by inadequately trained evaluators, supervision may harm motivation and good performance of CHWs (Moetlo, Pengpid, & Peltzer, 2011; Chanda et al., 2011). It is clear from the existing literature that CHWs motivation depends on the quality of supervision; however, few studies have focused on elements of effective supervisory performance (Kok et al., 2014).

Training: The literature suggests that adequate training has significant effect on CHWs' motivation and sustainability of CHW programs. In a systematic review of literature regarding factors influencing performance of CHWs, it is reported that training in a friendly environment by highly qualified trainers enhanced CHWs' motivation, performance and job satisfaction (Kok et al., 2014).

Workload: CHWs' performance may suffer from low motivation due to high workload resulting from high CHW population ratio. Several studies indicated that excessive workload was significantly associated with increased loss to follow up and poor performance among CHWs (Alam et al. 2012; Rahman et al., 2010).

Clarity on CHW tasks and roles: A lack of clarity on CHW tasks often leads to unrealistic expectations (e.g., asking for goods or money, demanding treatment in spite of a negative test) especially from people in the community, resulting in lowered motivation and performance of CHWs (Kok, et al., 2014). Therefore, prior to intervention's initiation, efforts should be made to ensure that communities have realistic expectations about the scope and knowledge of CHWs (LeBan et al., 2014).

Compensation: There are pay models to compensate CHWs including volunteer-based and paid models. However, it is clear from the existing literature that fair compensation is one performance-influencing factor (Davis, 2013; Dower et al., 2009; Kok et al., 2014). A combination of financial incentives (e.g.,

fixed pay, regular and irregular allowances, performance-related pay) and non-financial incentives (e.g., tangible rewards such as continuous training, feedback, frequent supervision and supplies) can lead to better performance, accountability and quality of work among CHWs (Kok et al., 2014; Crigler et al., 2013).

2.2.6. Roles of CHWs in COVID 19 Vaccination Layout

The earliest use authorization of COVID-19 vaccines was granted at the end of 2020, with additional vaccines anticipated in early 2021. Vaccines are expected to ship soon after authorization, though initial quantities will be limited (WHO.2020). Given the rapid evolution of COVID-19 vaccine development, this guidance is based on information available as of March 2021 and will be updated as new information becomes available. Vaccine requirements (including cold chain and handling), funding institutions and country-level health system characteristics will have a significant impact on the most effective strategies that countries can employ to rollout COVID-19 vaccines. Where possible, relevant considerations for different potential scenarios are described.

Community-based health workers routinely play critical roles in new vaccine introduction, including in planning, identification of target groups, community engagement and mobilization, service delivery, and in tracking and follow-up. Alongside other community-based providers, CHWs are key interlocutors, with their knowledge of “last mile” health service delivery, experience supporting vaccine acceptance and uptake, and shared lived experience that fosters trust and credibility within communities. Clearly defining and costing the inputs of CHWs within the NDVP will assist governments and implementation planners at all levels in addressing the scale, speed, and complexity involved in COVID-19 vaccine rollout.

Given their knowledge of the communities in which they serve, CHW representation on NCCs, and regional and local decision-making bodies can add value (WHO,2008). CHWs are well-placed to conduct surveys, focus groups and community meetings to gather in advance preferences on vaccine strategy and sites to maximize uptake, and promptly address misinformation to reduce reluctance. They are well placed to participate in micro-planning with other health workers and stakeholders to develop and execute strategies to reach people outside of clinical settings (particularly those who are mobile, “hard to find”, or may have difficulty travelling to a fixed site) and identify older adults or other target groups in the community. Their contributions can inform subnational, facility-led and local action micro-planning processes for COVID-19 vaccine distribution.

CHWs are essential to engagement activities with community leaders and decision-makers, driving community-level change by working within social dynamics and institutional and social structures. The effectiveness of immunization programmes, including COVID-19 vaccines delivery, relies on population

uptake and acceptance of vaccines, achieved through a range of strategies (JAMA. 2007). It also requires trust, which many CHWs have built in their communities. Global evidence shows that CHWs play an important role in vaccine promotion and acceptance: whether through community dialogue and engagement, education, trust-building, myth-busting, on- and offline social listening, or facilitating community entry (Kuhn L, Zwarenstein M.).

Multi-tiered dissemination and two-way dialogue strategies may comprise a variety of media contextualized by audience, monitored and adapted over time to identify concerns, reasons for mistrust and misinformation so these can be effectively targeted and addressed. Community engagement and social mobilization will be instrumental to address contextually specific community needs around the world. A comprehensive approach to vaccine education, engagement and informed consent requires skilled interpersonal communications by trusted sources of health information. Trained and appropriately supported, CHWs can uncover and understand individual and community perceptions, beliefs and barriers and address these with evidence-based and contextually appropriate solutions (“myth-busting”) (World Health Organization; 2021).

Based on the literature review in the above, the conceptual framework for this study is shown in figure 2.1 below. The figure contains two parts: CHW Core Consensus (C3) Project and COVID 19 response and CHW skills performance.

2.2.7. CHW Core Roles (Consensus (C3) Project) in Response to COVID 19

Scope of practice is a legal term used by states to define permissible boundaries of practice for health professionals (Anderson, 2013). Therefore, the scope of practice rules can vary between states. In the State of Minnesota, the HF 1078 bill, which provided for Medicaid reimbursement of CHW services, did not officially define a CHW scope of practice. However, it does mention care coordination and patient education as CHWs services (The Office of the Revisor of Statutes, 2015). Several entities have developed a scope of practice for CHWs including, most recently, the American Public Health Association’s C3 Project, which seeks to update the scope of practice developed by the 1998 National Community Health Advisor Study. The C3 Project is a national effort to define CHW core roles as well as skills and qualities. The consensus scope of practice developed, which is still in early stages of release and endorsement, includes the following roles, skills and qualities (APHA conference, November 2, 2015).

Many have called for engagement with Community Health Workers to address COVID-19 health inequities during the pandemic. The term “Community Health Worker” (CHW) is an umbrella term for a variety of public health occupations including, among other titles, promotoras de salud, community health representatives, patient navigators, and lay health advisors. While CHWs serve nearly every sector and

represent a variety of linguistic, racial, ethnic, and geographic communities throughout the United States, they are all, in the words of the American Public Health Association, “essential frontline public health workers who are trusted members of and/or have unusually close understandings of the communities they serve.” For the sake of advancing health equity, LHDs must engage CHWs wherever possible throughout their COVID-19 response. Activities which involve a direct interface between the LHD and community members are especially in need of engagement. With unique lived experiences, trusting community relationships, and the skill to navigate siloed services and systems of care, CHWs are well equipped to lead COVID-19 response activities. (APHA,2020).

Among the many roles identified by the CHW Core Consensus (C3) Project, CHWs are already engaged in the following COVID-19 response activities (community based-workforce alliance, 2020).

Cultural Mediation Among Individuals, Communities, and Health and Social Service Systems: CHWs build trust as necessary links between community members and the local health departments and the healthcare system, especially for communities that have been excluded from or marginalized by public health and healthcare services in the past. While CHWs are not responsible for nor capable of completely repairing systems of mistrust, their engagement is essential throughout the healing process.

Building Individual and Community Capacity: CHWs bridge local institutions by working with different agencies present in a community to promote a more comprehensive COVID-19 community health response that maximizes the utility of resources present and ensures equitable distribution to prioritize the needs of the most vulnerable.

Providing Culturally Appropriate Health Education and Information: Throughout American communities there is misinformation about the virus, widespread concerns about data privacy, and mistrust of traditional healthcare institutions among communities of color. There are also community concerns regarding negative consequences of providing their personal information to outsiders. A trusted messenger—such as a CHW—who meets people where they are and empowers them to act, is essential to building trust, a key component of any COVID-19 community outreach initiative. CHWs relay information to communities from LHDs and elevate the voices of the most marginalized to ensure community health responses are informed and equitable. CHWs also communicate proper COVID-19 health behavior in a culturally sensitive way. For example, when a CHW was called to speak with primarily immigrant workers in a fruit packing warehouse about the fear of infection spreading within the facility, they were able to train the workers on appropriate mask wearing and physical distancing protocols.

Care Coordination, Case Management, and System Navigation: Members of vulnerable communities find it especially difficult to self-isolate—due to limited work from home opportunities, a lack of housing space to safely isolate, or difficulty establishing a secure food supply—often need tailored support to follow self-quarantine guidelines. CHWs can help these individuals navigate social resources in LHDs and nonprofits to address concerns such as food insecurity, financial challenges, transportation difficulties and emotional trauma that contribute to higher risks of disease and impede recovery. For example, CHWs in the Navajo Nation (referred to as Community Health Representatives) help find food and water resources for individuals stopped at checkpoints after locally-imposed curfews. CHWs also help navigate the healthcare system, especially for patients with comorbidities, pre-existing conditions, and chronic care needs—those who are most high-risk for COVID-19. Because CHW identities reflect the diversity of the communities they serve, they have an immediate comprehension of the difficulties distinct communities face when accessing healthcare. CHWs can also continue to strengthen and maintain the healthcare system after a crisis like COVID-19 by promoting the management of chronic conditions in vulnerable populations with continuous accompaniment. As assessed by the CDC and several randomized control trials, CHWs are effective and essential healthcare workers; they are experts in community health.

Advocating for Individuals and Communities: CHWs can advocate for marginalized community members with employers and landlords to facilitate safe housing options and working conditions so that community members can remain safe and do not have to assume unnecessary risk to sustain their livelihoods during COVID-19. For example, that same CHW from the fruit packing plant advocated for the employees who did not have paid sick leave and were afraid to violate mandated work hours, which eventually ensured that all workers received a COVID-19 test at the owner's expense.

Conducting Outreach: While contact tracing and testing is functionally performed to track and prevent the spread of disease, the activity is fundamentally about community relationships. When a tracer conducts outreach, they represent the LHD's concern to guard the health of the community. Without serious engagement of CHWs in COVID-19-related community outreach activities, LHDs will likely fail to reduce health inequities because LHD representatives will not be trusted and largely unable to provide holistic support.

Additional CHW roles, as identified by the C3 Project, include: Providing Coaching and Social Support, Providing Direct Service, Implementing Individual and Community Assessments, and Participating in Evaluation and Research. All such roles should be engaged for the sake of COVID-19 response and rebuild efforts.

2.2.8. CHW Skills Performance

The Scope of Practice recommended by the Working Group was influenced by an extensive body of literature as well as the results of community-based participatory surveys conducted by the CHW Network of NYC and Columbia University. The aim of the surveys was to build consensus between CHWs and their employers on CHWs' scope of practice through a series of surveys. There was consensus on 7 major elements: 1) Outreach and community mobilization, 2) Community/Cultural liaison, 3) Case management/care coordination, 4) Home-based support, 5) Health promotion and health coaching, 6) System navigation, and 7) Participatory research. (Matos et al. 2011).

Outreach & community mobilization: Preparation and dissemination of materials, case-finding and recruitment, community strengths/needs assessment, home visiting, promoting health literacy advocacy environmental assessment.

Community/cultural liaison: Community organizing, advocacy, translation & interpretation community strengths/needs assessment.

Case management & care coordination: Family engagement, individual strengths/needs assessment, addressing basic needs (e.g., food, shelter, etc.), promoting health literacy, coaching on problem solving, goal setting & action planning, supportive counseling, coordination, referral and follow-ups, feedback to medical providers, treatment adherence promotion, documentation

Home-based support: Family engagement, home visiting, environmental assessment, promoting health literacy, supportive counseling, coaching on problem solving, action plan implementation, treatment adherence promotion and documentation.

Health promotion & health coaching: Translation and interpretation, preparation and dissemination of materials, teaching health promotion and prevention, coaching on problem solving, modeling behavior change, promoting health literacy, adult learning application, harm reduction, treatment adherence promotion, leading support groups, documentation

System navigation: Translation and interpretation, preparation and dissemination of materials, promoting health literacy, patient navigation, addressing basic needs (e.g., food, shelter), coaching on problem solving, coordination, referral and follow-up, documentation.

Participatory research: Preparation and dissemination of materials, advocacy, engaging participatory research partners, facilitating translation research interviewing, computerized data entry and web searches and documentation. (Matos et al. 2011).

Table 1. CHW roles, skills and qualities during COVID 19 pandemic

Roles	Skills	Qualities
1. Cultural Mediation among Individuals, Communities, and Health and Social Service Systems	1. Communication Skills	1. Connected to the community
2. Providing Culturally Appropriate Health Education and Information	2. Interpersonal and Relationship-Building Skills	2. Strong and courageous
3. Care Coordination, Case Management, and System Navigation	3. Service Coordination and Navigation Skills	3. Friendly/outgoing/sociable
4. Providing Coaching and Social Support	4. Capacity Building Skills	4. Patient
5. Advocating for Individuals and Communities	5. Advocacy Skills	5. Open-minded/non-judgmental
6. Building Individual and Community Capacity	6. Education and Facilitation Skills	6. Motivated and capable of self-directed work
7. Providing Direct Service	7. Individual and Community Assessment Skills	7. Caring
8. Implementing Individual and Community Assessments	8. Outreach Skills	8. Empathetic
9. Conducting Outreach	9. Professional Skills and Conduct	9. Committed/dedicated
10. Participating in Evaluation and Research	10. Evaluation and Research Skills	10. Respectful
	11. Knowledge Base	11. Honest
		12. Open/eager to grow/change/learn
		13. Dependable/responsible/reliable
		14. Compassionate
		15. Flexible/adaptable
		16. Desires to help the community
		17. Persistent
		18. Creative/resourceful

Source: Adapted from C3 Project: The Journey Toward a United Consensus. Presented at the American Public Health Association conference, November 2, 2015.

2.3. Conceptual Framework

Community Health Worker Performance Measurement Framework

The community health worker performance measurement Framework (Fig. 1 below), derived from iterative framework and indicator review and consultation, identifies critical areas for measuring the performance of CHW programs within their community health systems. While community health systems are inherently nonlinear and complex, the framework structure uses the common input-process-output-outcome logic model approach and has four areas: inputs, programmatic processes, community health performance outputs (measured at the CHW level and at the community level), and outcomes.

Inputs: Policies of national-level policies that support the development and deployment of CHW programs. CHW selection by Age, education and other policy-supported requirements for being eligible to become a CHW are listed. CHW tasks/workload Description of the role and tasks to be performed by a CHW from the community, CHW and health systems perspectives.

Governance/stakeholders: Engagement with the Ministry, agencies and other stakeholders to support the CHW programs.

Logistics provisions, material and technological to support CHW functions. Transportation Provisions, either monetary (fare for busses) or physical (bicycle) for CHWs to physically access target population,

commodities (including job aids) required equipment, medicines and supplies to deliver services, as well as resources such as job aids to support the quality of services.

Funding level of government/donor and other stakeholder investments in CHW programs in country information management systems, support for CHW to document home visits including community-based health information systems, report visit related data to the health system and link it to an assessment of CHW performance.

Programmatic processes: Supportive systems Structural processes that influence CHW functions at various levels of the health system (facility/local/sub-national/national) by supervision and performance appraisal, consistent and continued support for problem solving, service delivery and skill development, including evaluation and supportive feedback on the work performed by the CHW in a set period. The use of data by individuals at various levels of the health system to make decisions and improve operational processes. CHW development by the recruitment of how and from where a community health worker is identified, selected, and assigned to a community and the training is provided to the CHW to prepare for his/her role in service delivery and ensure s/he has the necessary skills to provide safe and quality care. Incentives Includes financial incentives such as salaries and bonuses and non-financial incentives such as training, recognition, uniforms and other opportunities for advancement. Support from community-based groups Role that the community (any organization or group at the community level) plays in selection, supervision, offering incentives and providing feedback to the CHW.

Community health systems performance outputs—CHW level: CHW competency on degree that is CHW has the knowledge and skills necessary to carry out the assigned tasks. CHW knowledge on degree to which CHWs have theoretical knowledge of counseling, preventative and curative and other tasks they are responsible for and service delivery on the quantity of promotional, preventive and curative services CHWs provide to community members to adherence to standards and procedures (counseling, health promotion, treatment accuracy). Data reporting regularity and completeness of CHW reports on the services they provide at the community level. Absenteeism frequency with which CHWs do not carry out tasks. CHW overall well-being may be seen as a measure of effectiveness of the system that supports the CHW program in motivating an individual's degree of willingness to exert and maintain effort on assigned tasks; a CHW's confidence, belief in his/her ability to produce a desired result. Job satisfaction on degree to which CHWs derive personal satisfaction from serving the community and providing services. Attrition/retention rate at which practicing CHWs resign, retire or abandon their positions.

Community health systems performance outputs—community level: Community access in delivery of community health services in a timely manner within the client's home/community or clients'

physical/social access to CHW service. The use of services by clients are routinely seeking and using promotional, preventive and curative services that CHWs offer. Knowledge services availability by Clients to identify the location of CHWs and services they provide. Referral/counter-referral by the acceptance and use of services provided at a health facility following referral by a CHW. Community-centered care Community involvement, experience, and perceptions of services provided by CHWs in empowering both individuals and communities participate actively in community health activities, experiencing of services delivered by CHWs, including respectful care, and clients' perception of quality of care, economic evaluation in comparison of two or more possible courses of action, with respect to the costs, consequences, and/or benefits of each, credibility/trust of CHW in degree to which clients consider the services provided by CHWs to be credible and reliable.(Agarwal et al. Human Resources for Health ,2019).

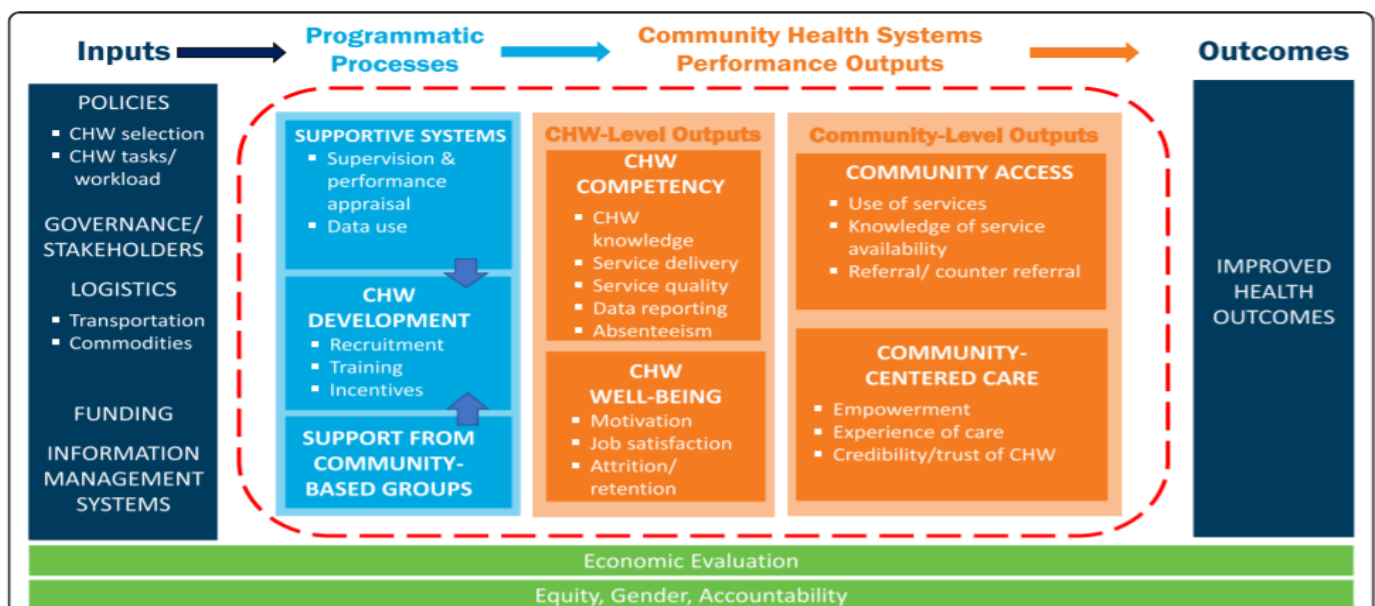


Figure 1. Community Health Worker Performance Measurement Framework

Source: Agarwal et al. Human Resources for Health (2019)

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter organized according to the following sections, the first section discusses the description of the study area. The second section, explains the research design. The third section describes the data collection methods. The fourth section presents the analysis of data to construct the findings of the research. The last section presents the ethical considerations.

3.1. Description of Study Area

The Africa Centers for Disease Control and Prevention (Africa CDC) is a public health agency of the African Union to support the public health initiatives of member states and strengthen the capacity of their health institutions to deal with disease threats. The Africa CDC idea was proposed by the government of Ethiopia in 2013 during TB/HIV special summit in Abuja Nigeria. From 2013 to 2016 the modalities and statute of Africa CDC were developed and the specialized agency was officially launched in January 2017.

The Africa CDC has played a role in responding to the global 2019–20 COVID-19 pandemic, which has affected Africa. In early April 2020, Director Dr John Nkengasong condemned remarks by two French scientists Professors Jean-Paul Mira and Camille Locht suggesting that a potential tuberculosis vaccine for the coronavirus be tested in Africa as "disgusting and racist." Dr Mira has since apologized for his remarks.

On 2 May 2020, the Africa CDC confirmed had nearly 40,000 cases, nearly 1,700 deaths, and more than 13,000 recoveries, and that COVID-19 had occurred in 53 African countries. As of June 18, 2020, Africa CDC reported that 52 African Union Member States recorded a number of 267,519 cases, 7197 deaths, and 122,661 recoveries. Egypt, Algeria, and South Africa were considered the countries with the highest risk to import the virus and with a moderate to high capability to block the virus outbreak.

The Africa CDC is based at the Africa CDC Coordinating Centre in Addis Ababa, Ethiopia, which also contains the agency's Emergency Operations Centre. The agency is led by Director Dr John Nkengasong and Deputy Director Ahmed Ogwel Ouma. Besides its Executive Office and a Science and Programme Office, the agency also has several divisions dealing with policy, health diplomacy, and communication, management and administration, surveillance and disease intelligence, laboratory systems and networks, emergency preparedness and response, public health institutes and research, and community health focal.

The Africa CDC also has regional collaboration centres in Egypt, Nigeria, Gabon, Zambia and Kenya; which cover Northern Africa, Western Africa, Central Africa, Southern Africa, and Eastern Africa

respectively. The Africa CDC also runs a specialized Pathogen Genomics Intelligence Institute and an Institute for Workforce Development.

3.2. Research Design.

Research design is the conceptual structure within which research is conducted as is relevant to the nature and purpose of a research. Certain types of research problems call for specific approaches. If the problem is to identify factors that influence an outcome, then quantitative approach is the best. On the other hand, if a situation needs to be understood because little research has been done on it, then qualitative method is more relevant. On the other hand, a mixed research methods design is useful to capture the best of the quantitative and qualitative methods (Creswell, 2009; Kothari, 2004).

A community-based online cross-sectional descriptive survey from April to 30 June 2021 was sent using a combined online survey and phone interviews from Africa CDC in Addis Ababa, Ethiopia. The study was conducted among the community health workers who are working at Health post and Primary Health Care level health institutions during the pandemic of COVID-19 in Africa CDC in Addis Ababa.

A semi-structured, self-administered questionnaire was prepared in google form and circulated to the sampled health workers of Africa CDC, Addis Ababa. The online forms were disseminated via various social media platforms like Facebook, messenger, g-mails, messengers and WhatsApp. The informed consent was also attached along with the google forms before the beginning of the survey. Informed consent was taken from each respondent before the data collection and they were provided full rights to withdraw the study at any instance of time they wish.

Table 2. Profile of research participants.

Occupation	male	Female	19-25yrs	26-35 yrs	36-45 yrs.	46-55 yrs.	56-65 yrs	Above 65 yrs	Total population
Health post	15	25	6	10	9	5	6	4	40
Primary Health Care level health institutions	30	20	10	8	15	7	3	7	50

Source: Compiled from survey data June, 2021

3.3. Research Methods

The study was used both primary and secondary data. The primary data was collected through close ended questionnaires. Questionnaires were used because it was easy for respondents to answer; easy to analyze and response choices would clarify the question for respondents. The questionnaires were composed of structured questions and measured using 5-point Likert scale. Also, the secondary data was obtained from books, records, internet and published articles.

3.3.1. Observations

observations allow gathering data on behaviors and phenomena without having to rely on the honesty and accuracy of respondents (Clarke, 2006). It gives insight to the researcher to look into the existing reality. Accordingly, observation has done by a prepared checklist to help the researcher to understand the CHWs competences through zoom webinars meetings and with partners and member states on their experiences of CHWs in response to COVID 19.

3.3.2. Key Informant Interviews (KIIs)

Key informant interviews help the researcher to communicate without restrictions with research participants (Bernard, 2006). Key informant interview was conducted with 15 CHWs via zoom; Community care coordinator, community health advisor and educator, community Health Promoter and community Outreach Worker, both from AFENET and Africa CDC over zoom meetings. The key informant discussion helped to examine and assess the extent of CHWs core competences during the pandemic.

3.3.3. Document Analysis

The researcher used both published and unpublished documents such as; available references, articles, reports, and thesis related to the shelter. The documents help the researcher to make primary data collection more specific with the help of secondary data. Besides, the researcher able to make out what are the gaps and impact of CHWs roles in response to the pandemic, and what are the additional information needs to be collected. Document analysis such as reports and databases related to the subjects of the study were collected from Africa CDC reports, journals websites and other related articles on CHWs response to the pandemic and analyzed to substantiate the study.

3.3.4. In-Depth Interviews (IDIs)

Face-to-face interviewing is an interviewer-administered survey, which provides maximum personal contact between the interviewer and the respondent and allows the interviewer to control the actual administration of the survey (Cowles and Nelson, 2015).

The in-depth-interview designed in this study then tries to get the data which maintain the data gathered through the questionnaire.

As a supplementary data gathering method, this in-depth-interview is also a means to purposely interview those concerned like the Director of the Africa Centers for Disease Control and Prevention, Addis Ababa, Ethiopia, Head of Division, Disease Control and Prevention | Ag Head of Division, Surveillance, The Africa Centers for Disease Control and Prevention (Africa CDC), African Union Commission and CHW program initiatives and technical advisors about the experienced, opportunities and lesson learned on CHWs roles during the pandemic. Totally, 10 purposely selected CHWs are the target of the representing sample size for the in-depth-interview.

3.4. Sampling procedures

3.4.1. Sample Size

Cooper and Schilndler (2006) define population as the total group of people or entities from which information is required. To collect the data about to roles as well as the challenges of COVID 19 outbreak on CHWs, the researcher target community health workers who are working at Health post and Primary Health Care level health institutions during the pandemic of COVID-19 in Africa CDC headquarter, Addis Ababa, Ethiopia. The number of the total CHWs selected for the survey were 100 from the sample size was drawn up from this target population and questioners was distributed to the sample size drawn from the target population for the study. Taking into consideration around 10% of incomplete data, the minimum sample size was 100. All participants were informed that their participation was voluntary and completed the consent form before taking part in the study. Only those individuals who expressed interest in taking part in the study had their names passed to the researchers to organize a meeting through online platforms (Emails , Zoom, and WhatsApp) for further information.

3.5. Data Analysis

All the interviews were held through these online platforms mentioned above. This method of conducting interviews was adopted in line with COVID-19 social distancing guidelines to prevent infection from one person to another (Singh & Adhikari, 2020). All the interviews lasted for 45 min. The interviews were stopped after reaching a saturation point, i.e., when no more new data were being generated from the interviews. The interviews were held between April 2021 and June 2021. All the interviews were audio recorded and transcribed verbatim before analysis. NVivo was used to organize the data to enhance analysis. The data were thematically analyzed, and the emergent themes were supported by quotes from the interviews held with participants (Braun & Clarke 2009).

3.6. Ethical Consideration

The researcher disclosed to the respondents that the study is purely meant to satisfy an academic requirement and not for any other reason. Respondents did not write their names in the questionnaires and confidentiality was observed. In this case, Primary information gathered from these Health post and Primary Health Care level health institutions the respondent's information were kept confidentially and will be destroyed after a reasonable period of time. Confidential files and issues regarding CHWs 'personal data, policies and strategies and other highly classified information that need to be kept confidential are given value and kept confidential. The information was analyzed and used for the purpose of the study only.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This chapter presents results from the online survey sent to CHWs in Africa CDC headquarter Addis Ababa, Ethiopia and which explores the strategies of CHWs on educating communities, providing care, and support during the COVID-19 pandemic and examined the perceptions and experiences of CHWs during the COVID-19 pandemic in order to: 1) understand changes in the CHW workforce, 2) identify training opportunities, and 3) describe priority needs of CHWs and their communities. An inter-professional team, including CHWs, CHW instructors, and researchers, developed an online survey to understand the perspectives and experiences of CHWs in Africa during the COVID-19 pandemic. The study distributed 37-item survey (qualitative and quantitative), available in English, via online survey, emails, WhatsApp, CHW networks and associations in AUC in Africa CDC and 90 CHWs completed the survey.

Clearly, CHWs have a huge role, impact and provide invaluable services to their communities and the healthcare, social service, and public health fields. As such, when the COVID-19 global pandemic hit Africa in early 2020, CHWs continued to do what they do best, serve their communities and fill gaps in information and services. With this added threat to their community, questions arose as to the roles and impact of the pandemic on the CHW workforce. To assess this potential impact and the roles of CHWs, the researcher developed an online survey distributed to Africa CDC CHWs from April to June of 2021. Specifically, the study examined the perceptions and experiences of CHWs during the COVID-19 pandemic to: 1) understand changes in the CHW workforce, 2) identify training opportunities, and 3) describe priority needs of CHWs and their communities. The CHW, at the Africa CDC answered a 37item survey (qualitative and quantitative), available in English, distributed via CHW networks and associations, online via emails, WhatsApp, to the Africa CDC in Africa Union headquarter in Addis Ababa, Ethiopia.

This report outlines the results from 90 self-identified CHWs who completed the survey. This report describes: 1) respondent demographics and professional setting; 2) employment changes; 3) changes in roles and skills experienced by CHWs during COVID-19 pandemic; 4) COVID-19-related training needs of CHWs; 5) quality of life impact of CHW employment during COVID-19 pandemic; and 6) CHW perceptions of community assets and challenges during the COVID-19 pandemic. The intent of reporting

the experiences and needs of CHW respondents is to help inform current responses to COVID-19 and future public health emergency responses.

This survey created the opportunity for CHWs to describe their experiences working with their communities before and during the COVID-19 pandemic response. The researchers hope that sharing the survey findings will be utilized to inform workforce training in addition to informing the response to current and future public health emergencies.

4.1. Characteristics of CHWs from Similar across Study Sites.

Table 3: Characteristics of CHWs from similar across study sites

	Frequency	Total in %
Gender		
Female	60	66
Male	30	34
Age		
19 - 25 years	10	12
26 - 35 years	30	33
36 - 45 years	20	23
46 - 55 years	12	14
56 - 65 years	10	11
Above 65 years	08	09
Educational Level		
Below diploma	16	17
Diploma	20	22
Bachelor Degree	30	27
Master Degree and above	20	22
Time working as a CHW		
< 5 years	20	23
5 - 10 years	40	45
> 10 years	30	33
Received incentives		

Monthly stipend	20	23
Allowances (transport, lunch, airtime)	65	72
Non-financial (food, backpacks)	5	5
Job discription as a CHWs		
Case Work Aide	11	12
Community Health Worker	31	34
Community Care Coordinator	16	18
Community Health Advisor and educator	20	23
Community Health Promoter	9	10
Community Outreach Worker	3	4
Time to reach farthest household		
Below 30 minutes	10	12
Between 30 - 60 minutes	25	28
Between 61 - 120 minutes	50	56
Above 120 minutes	05	07

Source: Compiled from survey data June, 2021

Table: 2, indicates Gender of respondents. Regarding respondents' gender 60 (66.6%) were females while (33.3%) were males. Which implies the proportion of female community health workers is larger than that of male CHWs.

As the age respondents shows as 10(11.1) of the respondents are in the range of 19 to 25 years, 30(33.3%) of the respondents are in the range of 26 to 35years, 20(22.3%) of the respondents are in the range of 36 to 45 years, 12(13.3) of the respondents are in the range of 46 to 55 years, 10(11.1%) of the respondents are in the range of 56to 65 years, 10(11.1%) of the respondents are in the range of above years. From this data, it can be understood that the majority of the employees are young and energetic.

the above table shows that the education status of the CHWs. As the education status shows as 16(17.7%) of the respondents have below diploma, 20(22.2%) of the respondents have diploma, 36(40%) of the respondent have 1st degree, 20(22.2%) of the respondents have 2 nd degree. From this data we can understand most of the respondents have 1st degree.

The above table shows that the work experience of the respondents. As the work experience shows as 20(22.2%) of the respondents are in the range of 0 to 5 years of experience, 36(40%) of the respondents are on the range of 6 to 10 years of experience, 30(33.3%) of the respondents are in the range of above 11years experience. From this data we can say most of the respondents have 5 to 10 years of work experience as community health workers.

As shown in the above table on CHW received incentives of respondents. 20(22.2%) of the respondents receive monthly stipend, 65(72.2%) of the respondents receive allowances (transport, lunch, airtime), 5(5.5%) of the respondents had non-financial (food, backpacks). From this data we can say most of the respondents received allowances (transport, lunch, airtime) during COVID 19 pandemic.

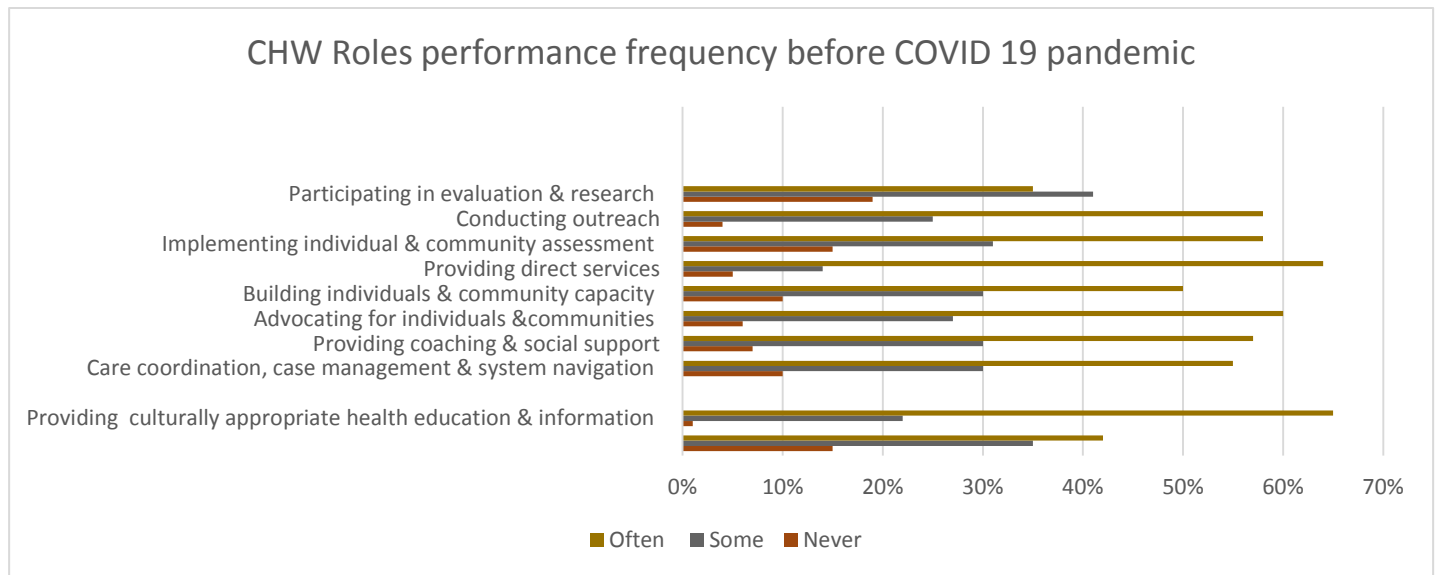
The above table shows that current work position of the CHWs. As the current work position shows as 11(12.2%) of the respondents are case work aide, 31(34.4%) of the respondent is community health workers, 16(17.7%) of the respondents are community care coordinator, 20(22.2%) of the respondents are c community health advisor and educator, 9(10%) of the respondents are community health promoter, 3(3.3%) of the respondents are community outreach worker. From this data we can say most of the respondents are community health workers.

From the table shown above on the time to reach farthest household. 10(11.1%) of the respondents use below 30 minutes, 23(25.5%) of the respondents use between 30 - 60 minutes, 50(55.5%) of the respondents use between 61 - 120 minutes, 5(5.5%) Above 120 minutes. From this data we can say most of the respondents uses between 61 - 120 minutes to reach farthest household.

4.2 Impact of COVID-19 on CHW Core Roles

Questions on the impact focused on how CHW roles had changed before and since the pandemic, and what new roles and skills they might have performed since the pandemic began. The five C3 core CHW roles

(Rosenthal, Menking, & and St. John, 2018) that the CHWs were performing “Often” before COVID-19 primarily consisted of Care Coordination, Case Management & System Navigation; Providing Culturally Appropriate Health Education; Advocating for Individuals & Community Capacity; Providing Coaching & Social Support, and Providing Direct Services. These roles with the most “Often” responses had a range of 18-20 responses.



Source: Compiled from survey data June, 2021

Figure 2. Community health worker roles performance frequency before pandemic began

Figure 2 indicates regarding the statement “Community health worker roles performance frequency before pandemic began”. 35.5% of the respondents are often, 37(41.1%) of the respondents are some, 17(18.8%) of the respondents are never in participating in evaluation & research. This shows that the respondents have a medium level of agreement towards the statement.

As the figure indicates regarding the statement; Conducting outreach, 53(58.8%) of the respondents are often, 23(25.5%) of the respondents are some, 4(4.4%) of the respondents are never. This shows that the respondents have a medium level of agreement towards the statement.

As the figure indicates regarding the statement; Implementing individual & community assessment 53(58.8%) of the respondents are often, 28(31.1%) of the respondents are some, 14(15.5%) of the respondents are never. This shows that the respondents have a medium level of agreement towards the statement.

From the above figure 2 indicates regarding the statement; Providing direct Services. 58(64.4%) of the respondents are often, 13(14.4%) of the respondents are some,5(5.5%) Of the respondents are never. This shows that the respondents have a medium level of agreement towards the statement.

As the figure indicates regarding the statement: Building individuals & community capacity, 45(50%) of the respondents are often, 27(30%) of the respondents are some,9(10%) Of the respondents are never. This shows that the respondents have a medium level of agreement towards the statement

As the figure indicates regarding the statement: Advocating for individuals & communities, 54(60%) of the respondents are often, 25(27.7%) of the respondents are some,9(10%) Of the respondents are never. This shows that the respondents have a medium level of agreement towards the statement.

As the figure indicates regarding the statement: Providing coaching & social support, 52(57.7%) of the respondents are often, 27(30%) of the respondents are some,7(7.7%) Of the respondents are never. This shows that the respondents have a medium level of agreement towards the statement.

As the figure indicates regarding the statement: Care coordination, case management & system navigation, 50(55.5%) of the respondents are often, 27(30%) of the respondents are some,9(10%) Of the respondents are never. This shows that the respondents have a medium level of agreement towards the statement.

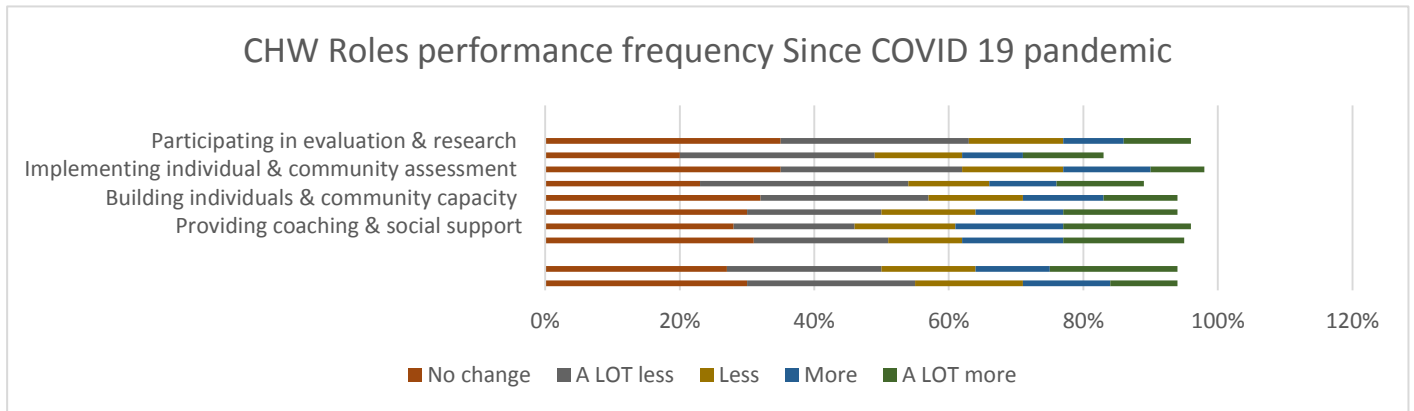
As the figure indicates regarding the statement: Providing culturally appropriate health education & information, 59(66.5%) of the respondents are often, 20(22.2%) of the respondents are some, (1.1%) Of the respondents are never. This shows that the respondents have a majority level of agreement towards the statement.

As the figure indicates regarding the statement: Culture mediation among individuals, communities, health & social service systems,38(42.2%) of the respondents are often, 32(35.5%) of the respondents are some, 14(15.5%) Of the respondents are never. This shows that the respondents have a medium level of agreement towards the statement.

From the key interview findings with the CHWs at Africa CDC, Community health workers had the following roles before covid 19 pandemic. Outreach: Phone calls, text, emails, Facetime , community engagement – education and messages via Facebook, Twitter, webinars and other social media outlets, prevention classes via zoom meetings/connections: DPP Healthy Lifestyle, Linking Individuals to community and clinical services, Social Support to Families going through cancer diagnosis, among others, follow-up calls and texts , care coordination, assist with referrals to services needed, provide virtual social and emotional support, and build individual capacity and family support via phone, text, front yard messages, and or drive through messages

From the findings above, the results establishes that CHW roles before the pandemic were on cultural mediation among Individuals, Communities, and Health and Social Service Systems including the level of

educating individuals and communities about how to use health and social service systems (including understanding how systems operate) , educating systems about community perspectives and cultural norms (including supporting implementation of culturally and linguistically appropriate services[CLAS] standards) Building health literacy and cross-cultural communication.



Source: Compiled from survey data June, 2021

Figure 3. Community health worker roles since COVID 19 pandemic

As figure 3 indicates regarding the statement: Community health worker roles performance frequency since the pandemic began. 37(30%) of the respondents chose no change, 23(25.5%) of the respondents chose a lot less, 15(16.6%) of the respondents chose less, 12(13.3 %) of the respondents chose more, 9(10%) if the respondents chose a lot more in Culture mediation among individuals, communities, health &social service systems during COVID 19 pandemic. Which implies that most of the respondents have no change with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement: Providing culturally appropriate health education & information, 25(27.7%) of the respondents chose no change, 21(23.3%) of the respondents chose a lot less, 13(14.4%) of the respondents chose less, 10(11.1 %) of the respondents chose more, 17(18.8%) if the respondents chose a lot more. Which implies that most of the respondents have no change with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement; care coordination, case management & system navigation, 28(31.1%) of the respondents chose no change, 18(20%) of the respondents chose a lot less, 10(11.1%) of the respondents chose less, 14(15.5 %) of the respondents chose more, 17(18.8%) if the respondents chose a lot more. Which implies that most of the respondents have no change with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement: Providing coaching & social support, 26(28.8%) of the respondents chose no change, 17(18.8%) of the respondents chose a lot less, 14(15.5%) of the respondents chose less, 15(16.6 %) of the respondents chose more, 17(18.8%) if the respondents chose a lot more. Which implies that most of the respondents have slightly no change with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement: Advocating for individuals & communities, 27(30%) of the respondents chose no change, 18(20%) of the respondents chose a lot less, 13(14.4%) of the respondents chose less, 12(13.3 %) of the respondents chose more, 16(17.7%) if the respondents chose a lot more. Which implies that most of the respondents have slightly no change with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement: Building individuals & community capacity, 29(32.2%) of the respondents chose no change, 23(25.5%) of the respondents chose a lot less, 13(14.4%) of the respondents chose less, 11(12.2%) of the respondents chose more, 10(11.1%) if the respondents chose a lot more. Which implies that most of the respondents have a medium of no change with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement: Providing direct services, 21(23.3%) of the respondents chose no change, 28(31.1%) of the respondents chose a lot less, 11(12.2%) of the respondents chose less, 9(10%) of the respondents chose more, 12(13.3%) if the respondents chose a lot more. Which implies that most of the respondents have a medium of no change with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement: Implementing individual & community assessment, 32(35.5%) of the respondents chose no change, 25(27.7%) of the respondents chose a lot less, 14(15.5%) of the respondents chose less, 12(13.3%) of the respondents chose more, 08(8.8%) if the respondents chose a lot more. Which implies that most of the respondents have a medium of no change with slightly a lot less with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement: Conducting outreach, 18(20%) of the respondents chose no change, 26(28.8%) of the respondents chose a lot less, 12(13.3%) of the respondents chose less, 08(8.8%) of the respondents chose more, 11(12.2%) if the respondents chose a lot more. Which implies that most of the respondents have a medium of no change with their roles during COVID 19 pandemic.

As the figure indicates regarding the statement: Participating in evaluation & research, 32(35.5%) of the respondents chose no change, 26(28.8%) of the respondents chose a lot less, 13(14.4%) of the respondents chose less, 08(8.8%) of the respondents chose more, 09(10%) if the respondents chose a lot more. Which

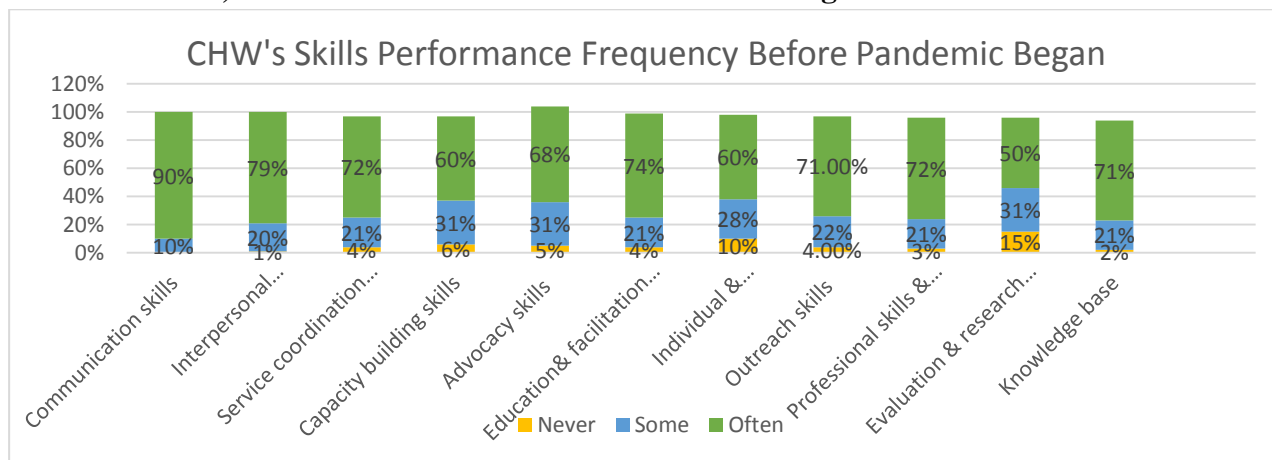
implies that most of the respondents have a medium of no change with their roles during COVID 19 pandemic.

Furthermore, during the key informant's interview, the Africa CDC, new roles performed by CHWs since the COVID-19 pandemic began, were identified by 36 survey responses. Not surprising, the new roles reported were related to COVID-19, including contact tracing, case investigation, and helping with vaccination (registration; PODs) and testing (registration). Some CHWs stated that the focus on the disease was new, and that being in the office was a new role. For some CHWs, advocacy (for patient, community, and with medical teams) was new, and one CHW stated that providing COVID-19 education was a new role.

From the above analysis, With the leadership of the community and local authorities (including armed forces and law enforcement), establish local mechanisms to detect and report individuals who could have COVID-19 to the designated health authority as early as possible. Low capacity and humanitarian settings with established early warning, alert and response systems (EWAR) can receive suspected COVID-19 alerts from both the primary health care centers using the standard WHO COVID-19 case definition or a nationally adopted case definition, from the community using community-based surveillance (CBS) with an adjusted case definition and more informally based on rumors of illness in the community. In conflict settings surveillance systems may be disrupted or in control of different powers; tailored solutions for combined reporting and may be required. (WHO,2021).

In general, the findings shows that Community-based health workers routinely play critical roles in new vaccine introduction, including in planning, identification of target groups, community engagement and mobilization, service delivery, and in tracking and follow-up. Alongside other community-based providers, CHWs are key interlocutors, with their knowledge of “last mile” health service delivery, experience supporting vaccine acceptance and uptake, and shared lived experience that fosters trust and credibility within communities. Clearly defining and costing the inputs of CHWs within the NDVP will assist governments and implementation planners at all levels in addressing the scale, speed, and complexity involved in COVID-19 vaccine rollout. Policy and regulatory preparedness include critical considerations for situations in which national governments decide to consider the implications of providing temporary clearance for CHWs to administer a specific COVID-19 vaccine. Other service providers should be sensitized on the role of CHWs to facilitate effective work within interdisciplinary teams.

4.3 CHW Skills; Pre and Since the COVID-19 Pandemic Began.



Source: Compiled from survey data June, 2021

Figure 4. Community health worker skills perform frequency before COVID 19

The result of descriptive statistics from figure 4 above indicate Community health worker skills perform frequency before COVID 19. 81(90%) of the respondents indicated often, 9(10%) of the respondents indicated some and no response to never on the communication skills of CHWs during COVID 19 pandemic.

This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 71(79%) of the respondents indicated often, 18(20%) of the respondents indicated some, 1(1%) of respondent indicated never to response to never on Interpersonal relation-building skills of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 65(72%) of the respondents indicated often, 19(21%) of the respondents indicated some, 4(4%) of respondent indicated never to response to never on Service coordination and navigation skills of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 54(60%) of the respondents indicated often, 28(31%) of the respondents indicated some, 6(6%) of the respondent indicated never to response to never on Capacity building skills of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 62(68%) of the respondents indicated often, 28(31%) of the respondents indicated some, 5(5%) of the respondent indicated never to response to never on advocacy skills of CHWs before

COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 67(74%) of the respondents indicated often, 19(21%) of the respondents indicated some, 4(4%) of the respondent indicated never to response to never on education& facilitation skills of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 54(60%) of the respondents indicated often, 26(28%) of the respondents indicated some, 9(10%) of the respondent indicated never to response to never on Individual & community assessment skills of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

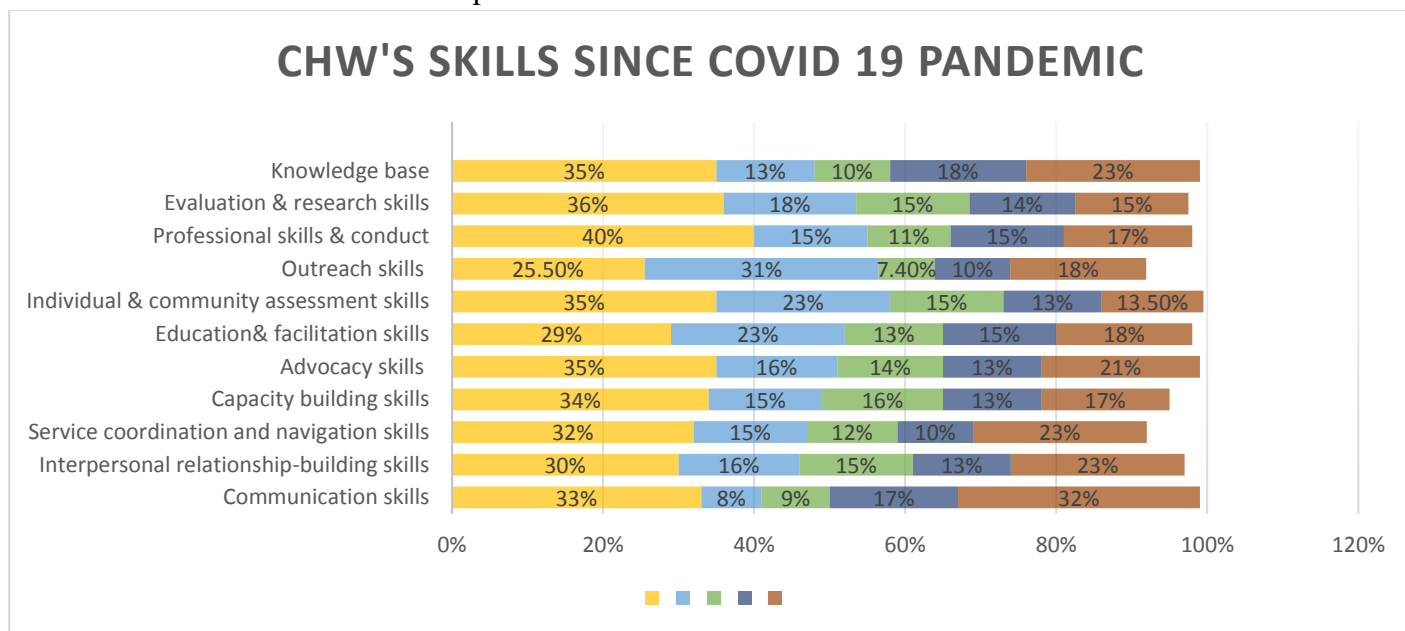
As indicated above, 64(71%) of the respondents indicated often, 20(22%) of the respondents indicated some, 4(4%) of the respondent indicated never to response to never on Outreach skills of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 65(72%) of the respondents indicated often, 19(21%) of the respondents indicated some, 3(3%) of the respondent indicated never on Professional skills & conduct of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 45(50%) of the respondents indicated often, 28(31%) of the respondents indicated some, 14(15%) of the respondent indicated never on Evaluation & research skills of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

As indicated above, 64(71%) of the respondents indicated often, 19(21%) of the respondents indicated some, 2(2%) of the respondent indicated never on Evaluation & research skills of CHWs before COVID 19 pandemic. This implies that most of the respondents are often with before the pandemic. We can say the CHWs skills were suitable before COVID 19 pandemic.

4.2.1 CHW Skills Since COVID 19 pandemic.



Source: Compiled from survey data June, 2021

Figure 5. Community health worker skills since pandemic

As figure 5 indicates regarding the statement; Community health worker skills performance frequency since the pandemic began. 32(35%) of the respondents chose no change, 12(13%) of the respondents chose a lot less, 9(10%) of the respondents chose less, 17(18%) of the respondents chose more, 21(23%) if the respondents chose a lot more in knowledge base during COVID 19 pandemic. Which implies that most of the respondents have no change with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'evaluation & research skills', 33(36%) of the respondents chose no change, 17(18. %) of the respondents chose a lot less, 14(15%) of the respondents chose less, 13(14%) of the respondents chose more, 14(15%) if the respondents chose a lot more. Which implies that most of the respondents have no change with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'Professional skills & conduct' ,36(40%) of the respondents chose no change, 14(15%) of the respondents chose a lot less, 10(11%) of the respondents chose less, 14(15%) of the respondents chose more, 16(17%) if the respondents chose a lot more. Which implies that most of the respondents have no change with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'Outreach skills', 23(25%) of the respondents chose no change, 28(31%) of the respondents chose a lot less, (7%) of the respondents chose less, 14(15%) of the respondents chose more, 16(17%) if the respondents chose a lot more. Which implies that most of the respondents have no change with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'Individual & community assessment skill', 32(35%) of the respondents chose no change, 21(23%) of the respondents chose a lot less, 14 (15%) of the respondents chose less, 12(13%) of the respondents chose more, 12(13%) if the respondents chose a lot more. Which implies that most of the respondents have no change and slightly a lot less with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'education & facilitation skill', 26(29%) of the respondents chose no change, 21(23%) of the respondents chose a lot less, 12 (13%) of the respondents chose less, 14(15%) of the respondents chose more, 17(18%) if the respondents chose a lot more. Which implies that most of the respondents have a medium no change and slightly a lot less with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'advocacy skills', 32(35%) of the respondents chose no change, 15(16%) of the respondents chose a lot less, 13(14%) of the respondents chose less, 12(13%) of the respondents chose more, 19(21%) if the respondents chose a lot more. Which implies that most of the respondents have a medium no change and slightly a lot less with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'Capacity building skills', 31(34%) of the respondents chose no change, 14(15%) of the respondents chose a lot less, 15(16%) of the respondents chose less, 12(13%) of the respondents chose more, 16(17%) if the respondents chose a lot more. Which implies that most of the respondents have a medium no change and slightly a lot less with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'Service coordination and navigation skills', 29(32%) of the respondents chose no change, 14(15%) of the respondents chose a lot less, 11(12%) of the respondents chose less, 9(10%) of the respondents chose more, 21(23%) if the respondents chose a lot more. Which implies that most of the respondents have a medium no change and slightly a lot less with their skills during COVID 19 pandemic.

As the figure indicates regarding the statement, 'Interpersonal relation-building skills', 27(30%) of the respondents chose no change, 15(16%) of the respondents chose a lot less, 14(15%) of the respondents chose less, 12(13%) of the respondents chose more, 21(23%) if the respondents chose a lot more. Which implies that most of the respondents have a medium no change and slightly a lot less with their skills during COVID 19 pandemic.

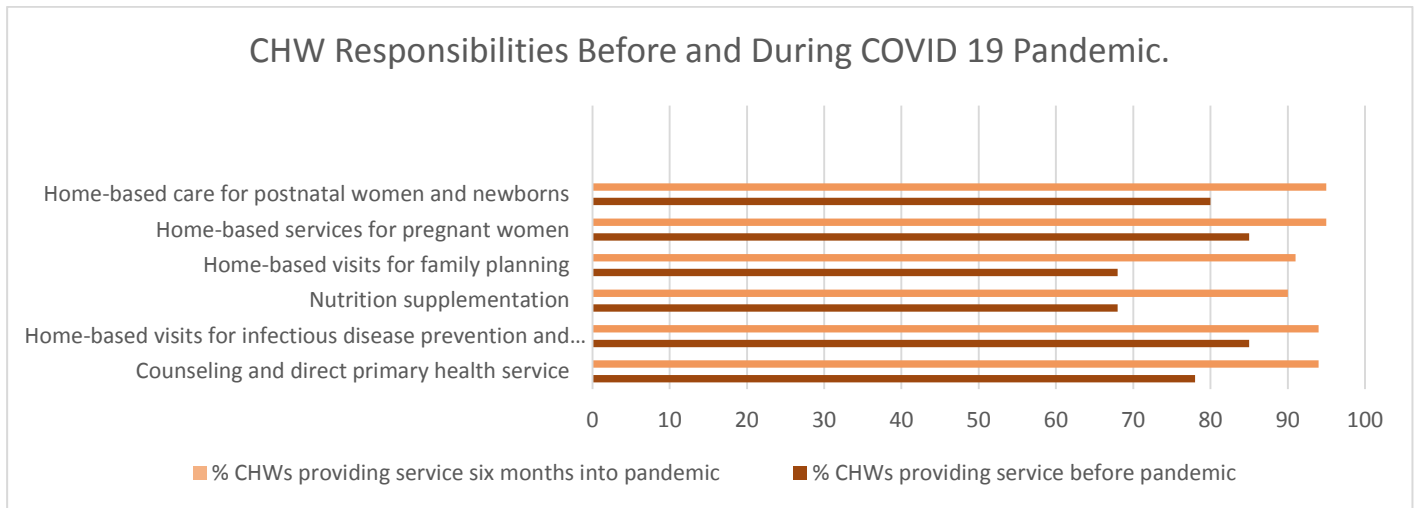
As the figure indicates regarding the statement, ‘Communication skills’, 30(33%) of the respondents chose no change, 08(8%) of the respondents chose a lot less, 8(9%) of the respondents chose less, 16(17%) of the respondents chose more, 29(32%) if the respondents chose a lot more. Which implies that most of the respondents have a medium no change and slightly a lot less with their skills during COVID 19 pandemic.

From key findings, with the Africa CDC, CHW promote health within a community by assisting individuals to adopt healthy behaviors. Serve as an advocate for the health needs of individuals by assisting community residents in effectively communicating with healthcare providers or social service agencies. Act as liaison or advocate and implement programs that promote, maintain, and improve individual and overall community health. May deliver health-related preventive services such as blood pressure, glaucoma, and hearing screenings. May collect data to help identify community health needs especially during COVID 19.

Highly dedicated and conscientious Community Health Worker with an outstanding customer service record and background in community service. Adept multitasker able to handle a high volume of simultaneous healthcare tasks and concerns with professionalism and accuracy. Especially skilled in providing ongoing health education for individual patients and family members in the society.

4.3. CHW Responsibilities Before and During COVID 19 Pandemic.

Using community health workers (CHWs) for home-based care offers many benefits to low-income countries whose healthcare infrastructure is over-burdened by the number of patients seeking treatment for COVID-19 infection. It is important to assess eligibility of patients and suitability of home or residential settings for home-based care. CHWs should be given training on COVID-19 transmission, clinical presentation of cases, and prevention strategies. CHWs should be provided with proper personal protective equipment (PPE) to help ensure the safety of CHWs, the people they work with, and the patients (CDC.2020).



Source: Compiled from survey data June 2021

Figure 6. CHW responsibilities before and during COVID 19 pandemic

As shown in the figure above, on CHW Responsibilities Before and During COVID 19 Pandemic. 85(94%) of the respondents were providing services six months into the pandemic, 71(78%) of the respondents provided services before the pandemic on counseling and direct primary health service. This indicates that the respondents have a medium level of agreement towards providing services before and six months into the pandemic.

As shown in the figure above, 85(94%) of the respondents were providing service six month into the pandemic, 77(85%) of the respondents provided services before the pandemic on home-based visits for infectious disease prevention and management. This indicates that the respondents have a medium level of agreement towards providing services before and six months into the pandemic.

As shown in the figure above, 81(90%) of the respondents were providing service six month into the pandemic, 62(68%) of the respondents provided services before the pandemic on nutrition supplementation. This indicates that the respondents have a medium level of agreement towards providing services before and six months into the pandemic.

As shown in the figure above, 82(91%) of the respondents were providing service six month into the pandemic, 62(68%) of the respondents provided services before the pandemic on home-based visits for family planning. This indicates that the respondents have a medium level of agreement towards providing services before and six months into the pandemic.

As shown in the figure above, 86(95%) of the respondents were providing service six month into the pandemic, 77(85%) of the respondents provided services before the pandemic on home-based services for

pregnant women. This indicates that the respondents have a medium level of agreement towards providing services before and six months into the pandemic.

As shown in the figure above, 86(95%) of the respondents were providing service six month into the pandemic, 72(80%) of the respondents provided services before the pandemic on home-based care for postnatal women and newborns. This indicates that the respondents have a medium level of agreement towards providing services before and six months into the pandemic.

According to findings from Africa CDC headquarters, as countries begin COVID-19 vaccination roll out, CHWs as an integral part of the infrastructure needed to reach all people. Evidence shows that CHWs can have a significant impact on vaccine uptake – capturing real time data on immunization status, referring when there are gaps, and working closely with the appropriate health facilities to target defaulters and close coverage gaps. They can also focus on messaging and behavior change to counter barriers to complete immunization coverage, including any lack of information about what vaccinations are needed and on what schedule, the actual process to get vaccinated, and managing side effects such as fevers.

Furthermore, supported CHWs identified approximately 130,000 under and unvaccinated children in Kenya and Uganda. Of the children identified, 85% received the needed vaccination after CHW referral. In Kenya, Lwala Community Alliance supported CHWs with digital tools to register children under 5, track their immunization status, and deliver prompts for follow-up with households who missed vaccine appointments, resulting in 95% immunization coverage in the communities in which these CHWs worked – 67% higher than the regional average. (<https://www.dimagi.com/case-studies/lwala-community-alliance/>)The evidence is clear: strengthening CHW programs can increase immunization coverage. (ACDC).

Generally, CHWs responsibilities before the pandemic where to; Create connections between vulnerable populations and the health care system. CHWs in Healthcare for The Homeless (HCH) programs work to guide patients experiencing homelessness toward more permanent primary care services outside the hospital system. Establishing a secure, trusted connection with a primary care provider can help prevent persons experiencing homelessness from reliance on Emergency Departments to meet primary care needs.

Care coordination and care transitions for clients; The mobility of CHWs within their communities creates opportunities for more coordinated care. CHWs can serve as a liaison between multiple services and help with care coordination and care transitions for their clients. In the process of connecting clients with multiple services, CHWs build relationships with local agencies, advocating for their clients in the process. The more CHWs are involved in the community at large, the more effective the linkages between the community and the health care system become ((March 2007. Community Health Worker National

Workforce Study). Assist clients with enrollment in programs and benefits for which they are eligible and encourage cultural competence among health care professionals serving vulnerable populations.

CHWs’ lived experience of homelessness helps them build rapport with clients while also informing policies, procedures, and practices within the HCH clinic. CHWs have a unique insight into the perspectives of their clients which helps them identify barriers or unmet needs within the HCH clinic that may go unnoticed by HCH clinicians or administrators.

4.4.CHW Qualities, Pre and Since COVID 19 Began.

Since summer 2014, the CHW C3 Project has worked to examine CHW roles, skills, and qualities among CHWs in the US. This was 20 years after the start of the NCHAS (The Final Report of the National Community Health Advisor Study) that offered a first national look at CHW core roles, skills, and qualities among several topics. (Weaving the Future, 1998). Two decades later, the C3 Project aims to offer contemporary CHW- and stakeholder-driven recommendations for national consideration and adoption related to CHW core roles, skills, and qualities. The C3 Project is a community-based research project with a focus on involving CHWs and stakeholders in the research process. (Journal of Epidemiology and Community Health. 2006).

Table 4: CHW qualities, Pre and Since COVID 19 Began.

Personality traits (qualities): <i>Before</i> COVID	RANK	Personality traits (qualities): <i>Since</i> COVID
Connected to the community served	1	Connected to the community served
Honest	2	Honest
Empathetic	3	Resourceful
Dependable	4	Empathetic
Resourceful	5	Dependable
Eager to learn	6	Courageous
Self-directed	7	Self- directed
Open-minded	8	Eager to learn
Outgoing	9	Open-minded
Courageous	10	Outgoing

Source: Compiled from survey data June, 2021

In regards to CHW qualities on table 3, the survey asked participants to rank qualities (personality traits) in order of importance, with one (1) being the most important and ten (10) being least important, before the COVID-19 pandemic began and *since* the pandemic began. The table above depicts the results of the ranking of qualities pre and since the pandemic.

CHWs were asked to rank 10 of the C3 CHW core qualities that aims are to expand cohesion in the field and to contribute to the visibility and greater understanding of the full potential of Community Health Workers to improve health, community development, and access to systems of care. (Rosenthal, Menking, & St. John, 2018) before and after the COVID-10 pandemic. On a scale of 1-10, with 1 being the most important, the qualities that CHWs ranked as the five most important both before and after were *Honest* (1, before and after), *Dependable* (2, before and after), *Outgoing* (3, before) and Empathetic (3, after), Connected to the Community (4, before) and Self-Directed (4, after), Open-Minded (5, before) and Connected to the Community (5, after). In order to account for the lack of responses that resulted in ties between the qualities, each rank was assigned a weight based on its importance.

The left side of the table shows the qualities/personality traits that ranked highest (most important) to lowest (least important) *pre*-pandemic; the right side of the table shows the qualities/personality traits ranked highest (most important) to lowest (least important) *after* the pandemic began. The green shades represent skills that moved up in order of importance from pre to post pandemic and include the qualities of resourcefulness and courage. The blue shades represent skills that moved down slightly in order of importance from pre to post pandemic and include the qualities of dependability, eagerness to learn, open-mindedness, and outgoing.

4.5. CHW Training/ Guidance on COVID 19

The literature suggests that adequate training has significant effect on CHWs’ motivation and sustainability of CHW programs. In a systematic review of literature regarding factors influencing performance of CHWs, it is reported that training in a friendly environment by highly qualified trainers enhanced CHWs’ motivation, performance and job satisfaction (Kok et al., 2014).

Table 5: CHW Training/ Guidance on COVID 19

Percentage of CHWs reporting training or guidance on specific topic	%
Preventive strategies (hand washing practices, social distance, self-quarantine, etc.)	98

General information about COVID-19	88
Correct use of PPE (masks, gloves, apron, etc.)	83
Signs and symptoms of COVID-19	81
Contact tracing and community surveillance	29
Home based care of COVID-19 cases	25
Continuity of community-based services	23

Source: Compiled from survey data June, 2021

As shown in table 4 above on CHWs reporting training or guidance on specific topic; 89(98%) of the respondent's response on training the communities on preventive strategies (hand washing practices, social distance, self-quarantine, etc.) on. This shows that majority of the respondents have a high level on given training/ guidance on specific topics during COVID 19.

As shown above, 80(88%) of the respondents indicated on training/guidelines to communities on general information about COVID-19. This shows that majority of the respondents have a high level on given training/ guidance on specific topics during COVID 19.

As shown above, 75(83%) of the respondents indicated on training/guidelines to communities on correct use of PPE (masks, gloves, apron, etc.). This shows that majority of the respondents have a high level on given training/ guidance on specific topics during COVID 19.

As shown above, 73(81%) of the respondents indicated on training/guidelines to communities on Signs and symptoms of COVID-19. This shows that majority of the respondents have a high level on given training/ guidance on specific topics during COVID 19.

As shown above, 26(29%) of the respondents indicated on training/guidelines to communities on contact tracing and community surveillance. This shows that the respondents have a medium level on given training/ guidance on specific topics during COVID 19.

As shown above, 23(25%) of the respondents indicated on training/guidelines to communities on home-based care of COVID-19 cases. This shows that the respondents have a medium level on given training/ guidance on specific topics during COVID 19.

As shown above, 21(23%) of the respondents indicated on training/guidelines to communities' continuity of community-based services. This shows that the respondents have a medium level on given training/ guidance on specific topics during COVID 19.

From the findings at Africa CDC, Community Health Workers (CHWs) are an essential part of the Partnership to Accelerate COVID-19 Testing (PACT) Initiative. Africa CDC set up PACT to drive forward the Africa Union Joint Continental Strategy for COVID-19 which aims to: Prevent the spread of COVID-19, prevent deaths from COVID-19, reduce the social and economic harm linked to with COVID-19 in Africa. the purpose of this training module is to give CHWs a rapid orientation to work in the COVID-19 response. It focuses particularly on CHW tasks in the TRACE component of PACT as well as how they will support the TEST and TREAT components.

4.6. CHWs Activities on COVID 19

CHWs are essential to engagement activities with community leaders and decision-makers, driving community-level change by working within social dynamics and institutional and social structures. The effectiveness of immunization programs, including COVID-19 vaccines delivery, relies on population uptake and acceptance of vaccines, achieved through a range of strategies (JAMA. 2007). It also requires trust, which many CHWs have built in their communities. Global evidence shows that CHWs play an important role in vaccine promotion and acceptance: whether through community dialogue and engagement, education, trust-building, myth-busting, on- and offline social listening, or facilitating community entry (Kuhn L, Zwarenstein M.).

Table 6: CHWs Activities on COVID 19

Percentage of CHWs engaged in COVID-19 activity	%
Educating community members about COVID-19 prevention or treatment	97
Educating communities/households about how to take care of someone with COVID-19 in the home	73
Referring suspected COVID-19 cases for testing	53
Reporting suspected or confirmed cases of COVID-19	49
Doing contract tracing for those who may have COVID-19 in the community you serve	48
Referring suspected COVID-19 cases for advanced care at facilities	46

--	--

Source: Compiled from survey data June, 2021

Table 5 demonstrates COVID-19 activities conducted by CHWs; 88(97%) of the respondents reported on educating community members about COVID-19 prevention or treatment during the pandemic. this implies that majority of the respondents have greater level on CHWs Activities on COVID 19.

As demonstrates above, 66(73%) of the respondents reported on educating communities/households about how to take care of someone with COVID-19 in the home. This implies that majority of the respondents have greater level on CHWs Activities on COVID 19.

As demonstrates above, 48(53%) of the respondents reported on referring suspected COVID-19 cases for testing. This implies that medium of the respondents have greater level on CHWs Activities on COVID 19.

As demonstrates above, 44(49%) of the respondents reported on reporting suspected or confirmed cases of COVID-19. This implies that medium of the respondents have greater level on CHWs Activities on COVID 19.

As demonstrates above, 44(48%) of the respondents reported doing contract tracing for those who may have COVID-19 in the community you serve This implies that medium of the respondents have greater level on CHWs Activities on COVID 19.

As demonstrates above, 42(46%) of the respondents reported referring suspected COVID-19 cases for advanced care at facilities. This implies that medium of the respondents have greater level on CHWs Activities on COVID 19.

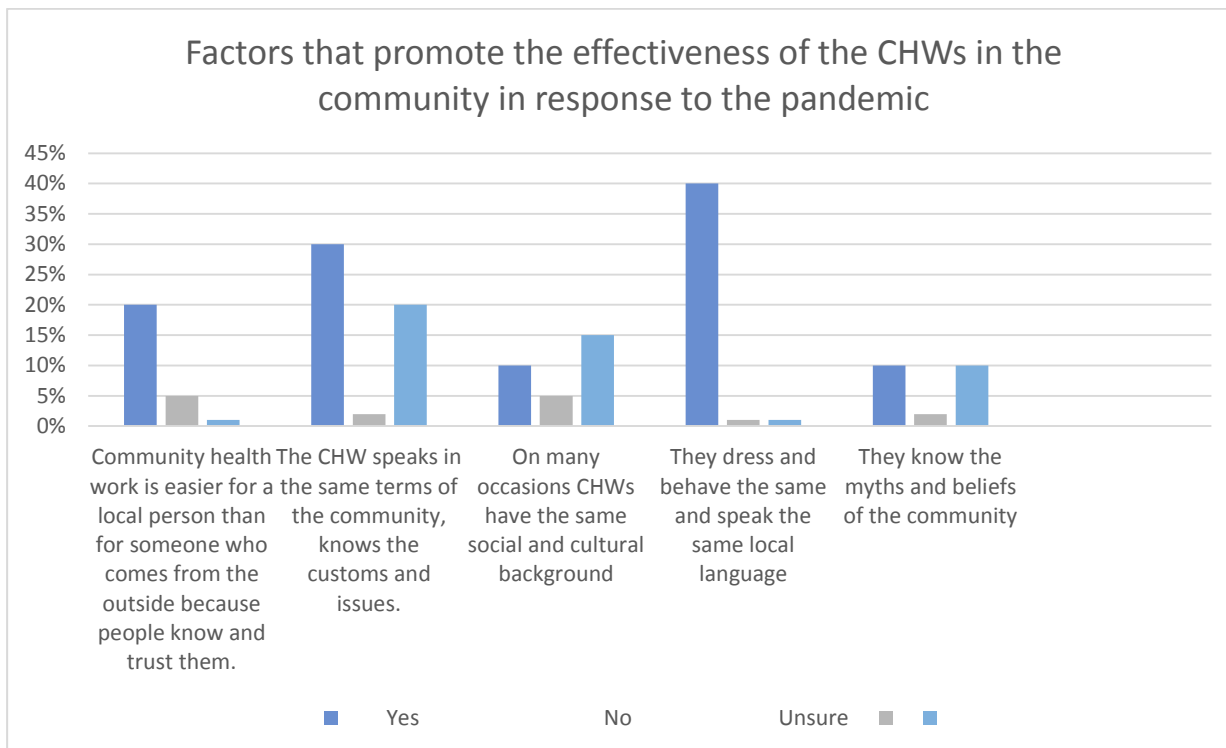
According to Africa CDC, the general COVID-19 community education and prevention activities are included in CHWs' routine activities. These activities are ideal for CHWs with limited hours to work, CHWs with less clinical experience, and those who can include these activities among the non-COVID-19 services they already provide to the community. Distribute community education materials on symptoms of COVID-19 and how it spreads. Answer community members' questions about COVID-19 and dispel myths, rumors, and misinformation circulating in the community. Provide education to reduce stigma against community members who are diagnosed with COVID-19, and encourage empathy and support to community members who are isolating or quarantining. Promote COVID-19 prevention measures including frequent hand washing, respiratory hygiene (coughing/sneezing into elbow), wearing masks properly and getting vaccinated when vaccines become available.

In addition, encourage community members to seek testing or clinical care if they develop COVID-19 symptoms or come in close contact with people with COVID-19. The World Health Organization provides guidance for prioritizing testing when diagnostic capacity is limited external icon. Screen for COVID-19 symptoms external icon when household or community visits are already included as part of routine duties.

Provide awareness and support for prevention of indirect impacts of COVID-19 (e.g., violence, food insecurity, lack of routine health care, and childhood immunizations). Look for and consider signs and symptoms external icon of violence and abuse and use social media to promote factual information.

4.7. Factors that Promote the Effectiveness of the CHWs in the Community in Response to the Pandemic

Some barriers to CHWs' effectiveness are not a product of the health system itself, but rather arise from the context in which the CHWs work. Some of these barriers are a result of the physical characteristics of community. For example, large coverage areas with limited transportation options can make conducting home visits challenging (Scott & Shanker, 2010). Long distances can also make it difficult for community members to access health posts when referred to by CHWs or for follow-up (Blanas, et al., 2013; Martinez, et al., 2008). In Ethiopia, health extension workers responsible for promoting facility-based birth reported that community members facilitated transportation to health centers by organizing groups to carry expecting mothers on stretchers or bicycles (Gebrehiwot, et al., 2014). Even still, the extension workers felt that geographical barriers were still a significant impediment to a woman's ability to get to a health center.



Source: Compiled from survey data June, 2021

Figure 7. Factors that promote the effectiveness of CHWs in the community in response to the pandemic.

As indicated in the figure 7. Factors that promote the effectiveness of the CHWs in the community; 18 (20%) of the respondents reported that community health work is easier for a local person than for someone who comes from the outside because people know and trust them, 5 (5%) did not get community health work is easier for a local person than for someone who comes from the outside because people know and trust them and 1 (1%) stated unsure of community health work is easier for a local person than for someone who comes from the outside because people know and trust them. This

As indicated above, 27 (30%) of respondents said, the CHW speaks in the same terms of the community, knows the customs and issues, 2 (2%) of the respondents responded that they did not get, and 18 (20%) stated they are unsure.

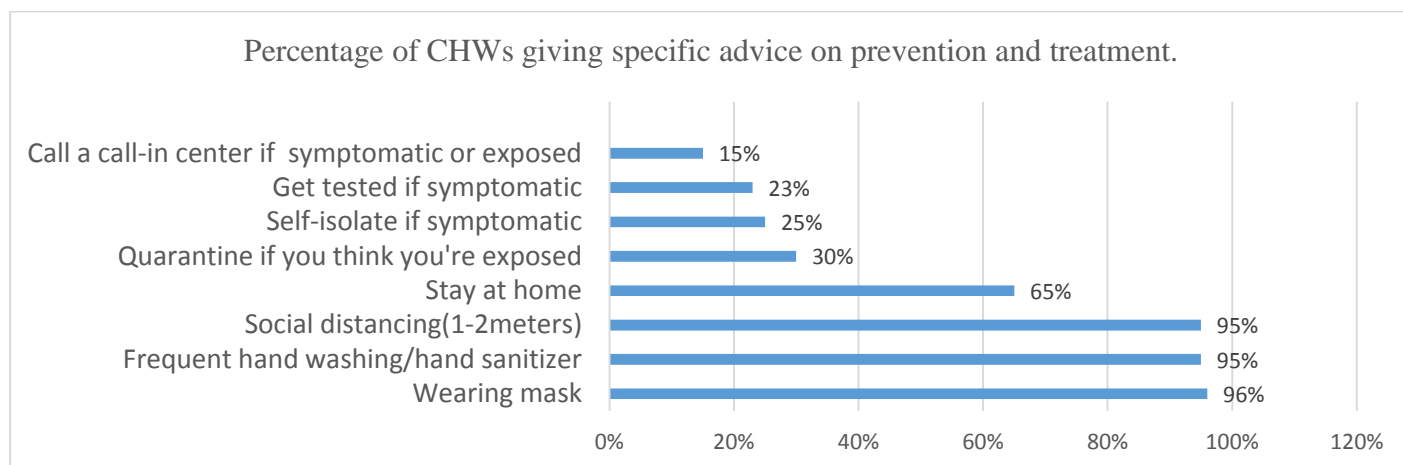
Again, 9 (10%) of the respondents reported that on many occasions, CHWs have the same social and cultural background, 5 (5%) responded they did not know and 15 (15%) were unsure on CHWs have the same social and cultural background during the pandemic.

Again, 36 (40%) of the respondents started they dress and behave the same and speak the same local language, 1 (1%) responded that they did not know and are unsure of dressing and behave the same and speak the same local language.

In additions 9(10%) responded they know the myths and beliefs of the community, 2(2%) responded of not getting to know the myths and beliefs of the community and 9(10%) stated unsure if they know the myths and beliefs of the community.

From the above variable several factors that promote the effectiveness of CHWs of CHWs in delivering behaviour change strategies, both individually and at the programmatic level. A range of contextual factors, such as social and cultural norms, economic constraints to care-seeking, geographic challenges of access, health system policy, and functionality, have all been found to influence the performance of CHWs. Challenging interpersonal environments where CHWs are navigate social hierarchies and gender expectations can limit their autonomy and voice and reduce CHW effectiveness.

4.8. CHWs Giving Specific Advice on Prevention and Treatment.



Source: Compiled from survey data June, 2021

Figure 8. Percentage of CHWs on specific advice on prevention and treatment

As shown in figure 8 above, on the percentage of CHWs giving specific advice on prevention and treatment, 14(15%) of the respondents reported that they have been educating their communities on COVID-19 prevention or treatment on call-a call in center if symptomatic or exposed including educating them on what to do if exposed to COVID-19 or if they develop symptoms.

More so, 21(23%) of the respondents reported that they have been educating their communities on COVID-19 prevention or treatment on getting tested if symptomatic.

Again, 23(25%) of the respondents reported that they have been educating their communities on COVID-19 prevention or treatment on self-isolate if symptomatic.

Again, 27(30%) of the respondents reported that they have been educating their communities on COVID-19 prevention or treatment on quarantine if you think you're exposed.

In additions, 59(65%) of the respondents reported that they have been educating their communities on COVID-19 prevention or treatment on Staying home during the pandemic.

In additions, 86(95%) of the respondents reported that they have been educating their communities on COVID-19 prevention or treatment on social distancing (1-2 meter) during the pandemic.

Furthermore, 86(95%) of the respondents reported that they have been educating their communities on COVID-19 prevention or treatment on Frequent hand washing/hand sanitizer during the pandemic.

Again, 87(96%) of the respondents reported that they have been educating their communities on COVID-19 prevention or treatment on the proper wearing of mask during the pandemic.

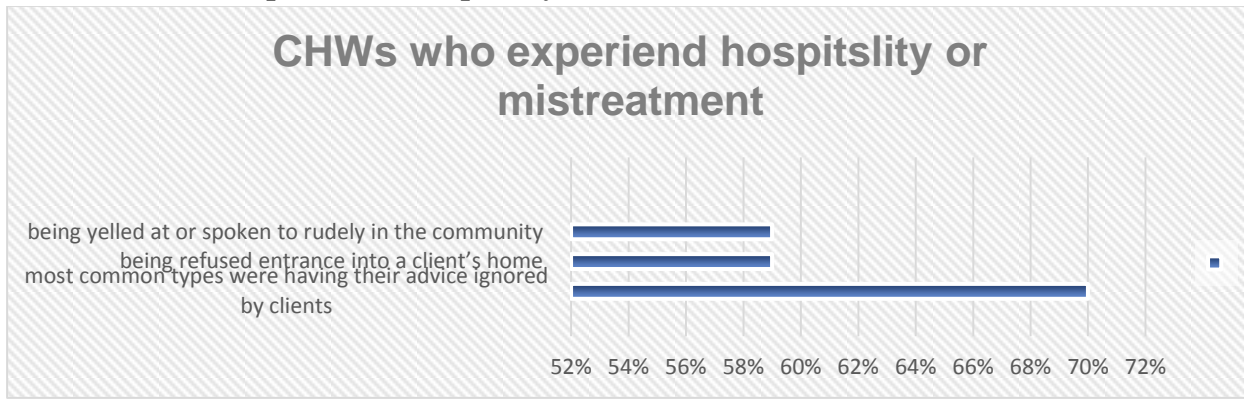
From the above, almost all CHWs reported giving specific advice to their communities on prevention and treatment such as wearing masks, frequent hand washing/sanitizing, and social distancing, and the majority gave advice on what to do if exposed or symptomatic.

From key findings as a critical worker, CHW are closely interacting with the members of the communities they serve. CHW are better protect themselves and their clients if they know how to provide services safely during home visits to prevent the spread of COVID-19; they are ready to provide support to a client who is sick with COVID-19; and can help prevent spread by being aware of steps to take when someone is diagnosed with COVID-19.

To ensure the safety of CHWs and the patients and people they work with, CHWs should; Wear masks at all times in the community. Most people with COVID-19, including children, have mild symptoms or no symptoms at all, and using masks prevents people who might not realize they are infected from spreading the virus to others. Stay at least 2 meters away from other people, when possible.

Meet community members outdoors, or in well-ventilated areas. Practice no-contact greetings, such as waving, bowing, or head nodding. Have a sufficient supply of materials, including masks and enough soap, or alcohol-based hand rub (at least 60% alcohol), needed to conduct their assigned tasks and properly protect themselves. Be trained in the proper use and disposal of PPE.

4.9. CHWs who Experienced Hospitality or Mistreatment



Source: Compiled from survey data June, 2021

Figure 9. CHWs who experienced hospitality and mistreatment

As indicated in figure 9 above, CHWs who experienced hospitality and mistreatment; 63(70%) of the respondent indicated the most common types were having their advice ignored by clients, 53(59%) of the respondents indicated being refused entrance into a client's home and another 53(59%) of the respondents indicated being yelled at or spoken to rudely in the community

Among CHWs who experienced hostility or mistreatment, the most common types were having their advice ignored by clients (70%), being refused entrance into a client's home (59%), and being yelled at or spoken to rudely in the community (59%).

From the above findings, CHWs reported experiencing hostility or mistreatment by the community due to their work. The most common types of CHW mistreatment were having their advice ignored by clients, being refused entrance into a client's home, and being yelled at or spoken to rudely in the community. Data indicate that very few CHWs received infection prevention supplies regularly in their work, CHWs reporting regular provision of masks, gloves, and hand sanitizer. Most CHWs reported receiving these supplies "irregularly

4.10. CHW Challenges During COVID 19 Response.

Inadequate PPE not only impacted CHW health but also the people they served. CHWs experienced hostility from local residents due to well-placed fears that inadequate PPE made CHWs potential carriers of the virus (Lotta et al., 2020). Hostility restricted CHWs from being able to perform the full scope of their duties, further limiting distribution of knowledge about how to prevent the spread of the virus.

Similar fears were observed in Sub-Saharan African countries (Nepomnyaschchiy, Dahn, et al. 2020), India (Tiwari, 2020), and throughout the world (Bhaumik et al, 2020).

Table 7: CHW Challenges During COVID 19 Response

Percentage of CHWs reporting challenge	%
Cannot travel because of social distancing regulations	33
Do not have adequate PPE to feel safe	73
People fear CHW might spread COVID-19	61
CHW fears she may get COVID-19	50
Had shortage of contraceptives	14
Had shortage of drugs	20
Had shortage of other commodities	31
Public transportation unavailable	13

Source: Compiled from survey data June, 2021

As shown in table 6, CHW challenges during COVID 19 Response, 30(33%) of the respondents indicated that they cannot travel because of social distancing regulations, 66(73%) of the respondents indicated they do not have adequate PPE to feel safe, 55(61%) of the respondents indicated that people fear CHW might spread COVID-19, 45(50%) of the respondent indicated that CHW fears she may get COVID-19, 13(14%) of the respondents indicated that they had shortage of contraceptives, 18(20%) of the respondents indicated that they had shortage of drugs, 28(31%) of the respondents indicated that they had shortage of other commodities and 12(13%) of the respondents indicated public transportation unavailable to reach their destinations. This implies that majority of the respondents do not have adequate PPE to feel safe and CHW fears she may get COVID-19.

According to findings from Africa CDC, as vaccine distribution rolls out, CHW role to ensure they receive timely access to protective and preventive commodities and to ameliorate their fears of providing care to patients infected with the virus. CHWs will play a pivotal role in educating individuals about mobilizing communities for vaccination if policy makers and program managers define their roles, place them at the front of the line for the vaccine and equip them with the information they need to inform community members.

Community health workers across the world served a pivotal role in combating the COVID-19 pandemic this year. Kenya's First Lady Margaret Kenyatta was among many who commended CHWs for their

essential role during the pandemic (Business Ghana, 2020). But kind words without supportive action contribute little to the challenges faced by CHWs as the case with CHW in Africa CDC. CHW programs and researchers consistently reported limited access to PPE, low wages, and disparities in the availability of other resources necessary for CHWs to perform their roles effectively.

CHW Central is marking a year in review by highlighting research and news describing the contributions of and challenges experienced by CHW in the fight against the global pandemic. The vast majority of resources made available on the CHW Central database emphasize the role of personal protective equipment (PPE) in ensuring the safety and effectiveness of CHWs in performing their roles. Accordingly, this feature highlights results from these findings. The first review initial CHW program responses to the virus. Then, we describe PPE resource shortages impacting CHW safety. Next, we highlight the need to recognize CHWs as an integral part of the health force. Finally, we summarize additional recommendations to improve CHW programming for the pandemic and beyond.

4.11. CHWs Receiving Personal Protective Equipment (PPE)

Throughout 2020, the global supply of personal protective equipment (PPE) remained at the forefront of conversations about the CHW-led pandemic response. PPE includes masks, gloves, medical gowns, and other resources that can help individuals protect themselves from contracting communicable diseases. Failure to provide adequate PPE increases risk of community transmission and decreased motivation to provide care. One CHW in Namibia, for example, described fear of treating a patient who was isolating after testing positive because they did not have the protective gear needed to reduce risk of transmission (China Daily, 2020). CHW advocates and researchers noted the importance of addressing global PPE shortages as early as April 2020. Ballard, Bancroft, et al. (2020) outlined immediate actions that governments could take to achieve protection of healthcare workers and vulnerable populations alike while also preventing the spread of the virus and maintaining existing health systems. They prioritized actions in four key areas: (1) protecting healthcare workers, (2) interrupting the virus, (3) maintaining health services while surging their capacity, and (4) shielding the vulnerable.

Table 8: Percentage of CHWs Receiving personal protective equipment (PPE)

Percentage of CHWs reporting receiving PPE	%
Disposable masks	55
Hand sanitizer	48

Reusable masks	40
Gloves	29
Soap	27
Cleaning/disinfecting supplies	7

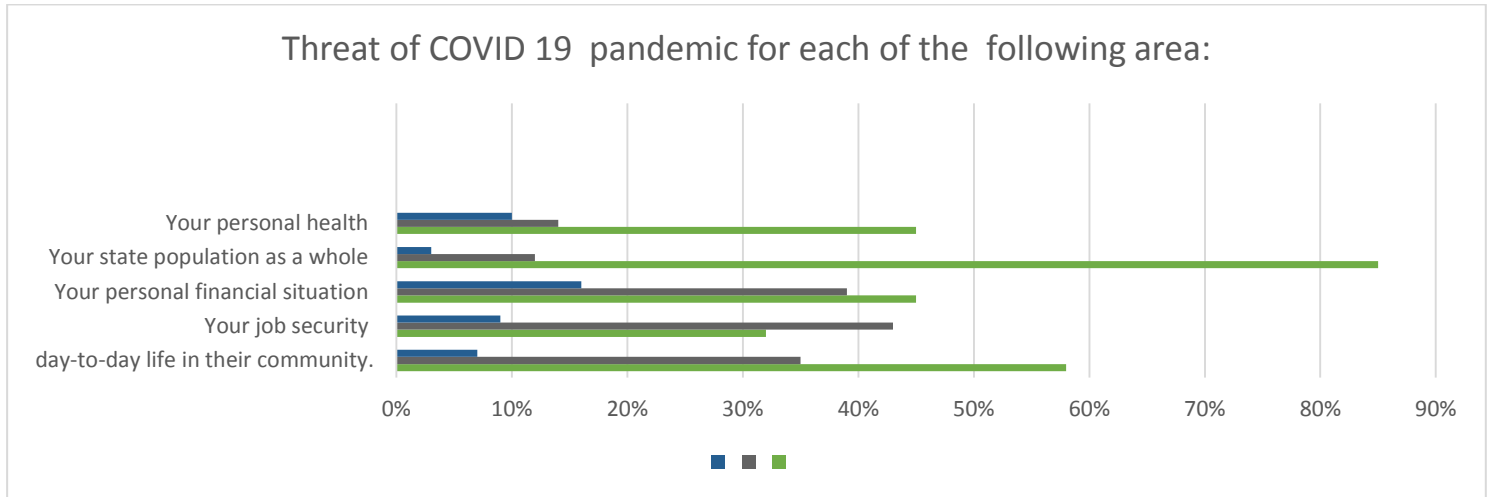
Source: Compiled from survey data June, 2021

As indicated in the above table 7, on of CHWs Receiving Personal protective equipment PPE, 50(55%) of the respondents shows receiving disposable masks, 44(48%) of the respondents shows receiving hand sanitizers, 36(40%) of the respondents shows receiving reusable masks, 26(29%) of the respondents shows receiving gloves, 25(27%) of the respondents shows receiving soaps and 7(7%) of the respondents show receiving cleaning and disinfecting supplies during the COVID 19 pandemic.

From the above findings, personal protective equipment (PPE) is required for CHWs to safely support COVID-19 response efforts and maintain essential services. Unfortunately, the COVID-19 outbreak has caused a surge in demand for—and corresponding global shortage of—PPE. While this deficit affects all health workers, recent evidence suggests CHWs in low- and middle-income countries have been disproportionately affected due, in large part, to their incomplete integration within national health systems (Ballard & Westgate, 2020).

In additions, CHWs played a vital role in the 2014-2016 Ebola response and are already doing the same during COVID-19: in many low- and middle-income countries, CHWs are at the frontlines preventing, detecting, and responding to the outbreak (Wiah et al., 2020). CHWs are a significant pillar of basic public health interventions as they conduct contract tracing and support isolation; robust networks of CHWs may be one of the many reasons why some countries (e.g., Ghana, South Africa) have been successfully mitigating spread (Moore, 2020). CHWs are also critical to ensuring that the coverage of essential services does not decline a common occurrence during crises which can ultimately kill more people than the epidemic itself. Without PPE, however, community health workers can neither stop COVID-19 nor provide health services. (See Box 1 for a discussion of the critical role of CHWs where other health services are scarce.)

4.12. Personal Impact of Covid-19 Pandemic



Source: Compiled from survey data June, 2021

Figure 10. Personal impact of COVID 19 on CHWs

As indicated in figure 10, personal impact(threat) of COVID 19 on CHWs, 53(58%) of the respondents chose major threat, 32(35%) of the respondents chose minor threat, 7(7%) of the respondents chose not a threat on their day-to-day life in their community during the pandemic This implies that most of the respondents chose major threat and slightly minor threat on their day-to-day life in their community during the pandemic.

As shown, 29(32%) of the respondents chose major threat, 39(43%) of the respondents chose minor threat, 8(9%) of the respondents chose not a threat on ‘‘Your job security’’ during the pandemic This implies that most of the respondents chose major threat and slightly minor threat on their day-to-day life in their community during the pandemic.

As shown, 41(45%) of the respondents chose major threat, 35(39%) of the respondents chose minor threat, 16(16%) of the respondents chose not a threat on ‘‘ Your personal financial situation’’ during the pandemic This implies that most of the respondents chose major threat and slightly minor threat on their day-to-day life in their community during the pandemic.

As shown, 77(85%) of the respondents chose major threat, 11(13%) of the respondents chose minor threat, 3(3%) of the respondents chose not a threat on ‘‘ Your state population as a whole’’ during the pandemic This implies that most of the respondents chose major threat and slightly minor threat on their day-to-day life in their community during the pandemic.

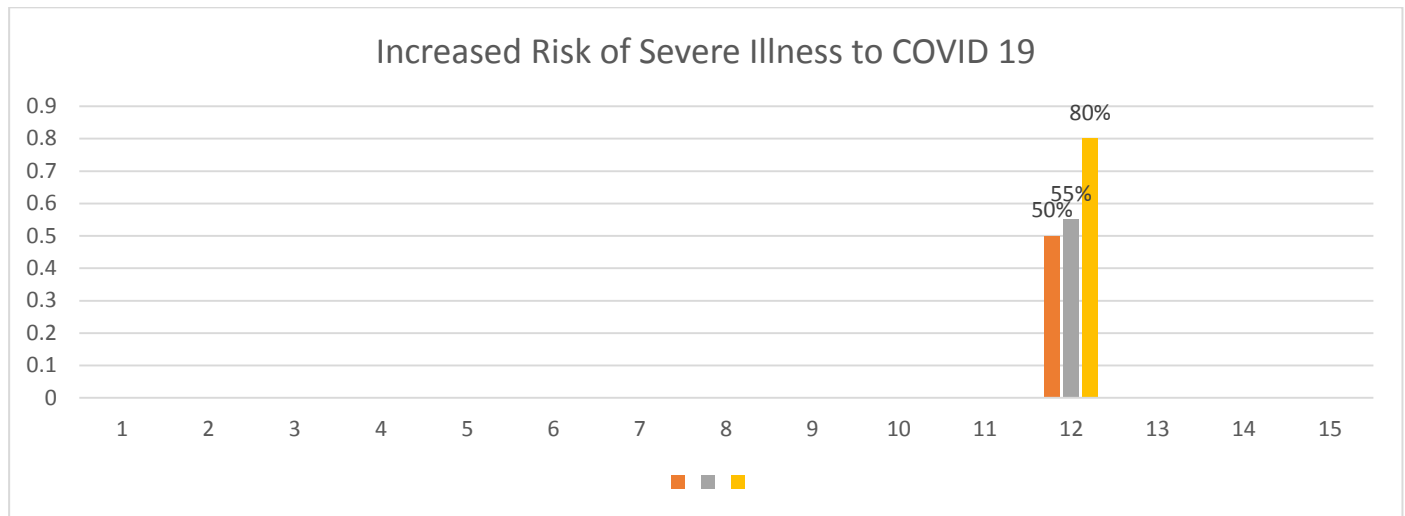
As shown, 41(45%) of the respondents chose major threat, 40(44%) of the respondents chose minor threat, 9(10%) of the respondents chose not a threat on “Your personal health” during the pandemic. This implies that most of the respondents chose major threat and slightly minor threat on their day-to-day life in their community during the pandemic.

From the analysis, CHWs explained how the threats of the COVID-19 pandemic affected their family life. These qualitative responses focused on the physical and mental health impact on COVID-19, and the need for and/or lack of prevention and social distancing. A more detailed description of the participants’ experiences and perceptions is provided below.

The threats of COVID-19 affected family life by impacting the physical and mental health of both family members and CHWs, and had a potential financial impact. Specifically, CHW stated that family members were at risk, got sick or were lost from COVID-19, and that their mental health was impacted (cranky since not able to return to college, and not sleeping well and thinking about losing job). CHWs considered their work as a risk to their family, and felt an impact on their mental health (afraid to lose job & financial impact, afraid to be exposed to COVID-19, afraid to get family sick, worry about relative’s symptoms, afraid to lose relative).

Lastly, the threat of COVID-19 also affected families by the intertwined need for and lack of prevention and social life. Prevention meant taking precautions and being aware about others around, but also meant loss of social life (no family gatherings; not able to visit with friends; less time in church, distance community members, not interactive, no social life). One CHW mentioned the impact of prevention on work, i.e. not being able to connect with peers and providing resources to those in need. CHWs also mentioned the lack of prevention among the younger generation, families, co-workers, and people in public / in the community (community not following CDC guidelines).

4.13. Increased Risk of Severe Illness to COVID 19.



Source: Compiled from survey data June, 2021

Figure 11. Increased Risk of Severe Illness to COVID 19

As figure 10 indicates, regarding the statement ‘Increased Risk of Severe Illness to COVID 19’, 45(50%) of the respondents indicated on the statement, are you considered to have increased risk for severe illness related to covid 19, 50(55%) of the respondents indicated on the statement on Is anyone in your household considered to have increased risk for severe illness related to COVID 19? And 72(80%) of the respondents indicated in the statement on Is the population that you currently work with considered to have increased risk for severe illness related to COVID 10? This shows that the respondents have a majority level of agreement towards the statement.

According to the CDC, older adults and those with underlying chronic health conditions are among those who are at increased risk of severe illness from COVID-19 (CDC, People at Increased Risk, 2021). Using this definition, participants were asked if they, anyone they lived with, or the population that they currently worked with, were at increased risk of severe illness from COVID-19. CHWs/CHRs seemed to consider themselves (55.0%) and those they lived with (50.0%) at lower risk of severe illness from COVID-19 than the populations they worked with (80.0%).

As indicated in figure...over 75% of CHWs reported working with a population considered at high-risk for COVID 19. Ensuring appropriate training opportunities to disseminate messaging for CHWs focused on reaching those with underlying conditions and/or environments that increase the risk and severity of COVID-19. Align training opportunities for CHWs with the primary actions of state and/or local public health led efforts to address the underlying conditions and/or environments that increase the risk and

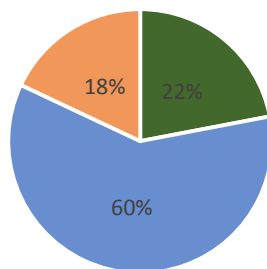
severity of COVID-19 infections. Coordinate and/or promote opportunities, such as messaging/education within communities and clinical settings to facilitate the engagement of CHWs in addressing the needs of those at highest risk for poor health outcomes. Facilitate engagement of CHWs in the care, support, and follow-up across clinical and community settings of priority populations at highest risk for poor health outcomes. Project are implemented in communities or populations at risk for poor health outcomes as a result of COVID-19. Persons who are economically disadvantaged, justice-involved, experiencing homelessness, or have certain underlying medical conditions that increase COVID-19 risk.

Many factors, such as poverty and healthcare access, are intertwined and have a significant influence on the people's health and quality-of-life. Racial and ethnic minority populations are disproportionately represented among essential workers and industries, which might be contributing to COVID-19 racial and ethnic health disparities. "Community health workers" are those who conduct a range of operations and services in industries that are essential to ensure the continuity of critical functions in the United States, from keeping us safe, to ensuring food is available at markets, to taking care of the sick. A majority of these workers belong to and live within communities disproportionately affected by COVID-19. Community health workers are inherently at higher risk of being exposed to COVID-19 due to the nature of their work, and they are disproportionately representative of racial and ethnic minority groups.

To achieve health equity, Africa CDC is committed to understanding and appropriately addressing the needs of all populations, according to specific cultural, linguistic, and environmental factors. By ensuring health equity is integrated across all public health efforts, all communities will be stronger, safer, healthier, and more resilient. Factors affecting health equity: Some of the many inequities in the social determinants of health that put racial and ethnic minority groups at increased risk of getting sick and dying from COVID-19 include: housing, discrimination, healthcare access and use, occupation and educational, income, and wealth gaps. These factors and others are associated with more COVID-19 cases, hospitalizations, and deaths in areas where racial and ethnic minority groups live, learn, work, play, and worship. They have also contributed to higher rates of some medical conditions that increase one's risk of severe illness from COVID-19. In addition, community strategies to slow the spread of COVID-19 might cause unintentional harm, such as lost wages, reduced access to services, and increased stress, for some racial and ethnic minority groups

4.14. Proximity to a Person who Tested Positive for COVID 19

Have you been in close proximity to anyone who has tested positive for COVID 19 through your work as a CHW?



■ YES ■ NO ■ UNSURE

Source: Compiled from survey data June, 2021

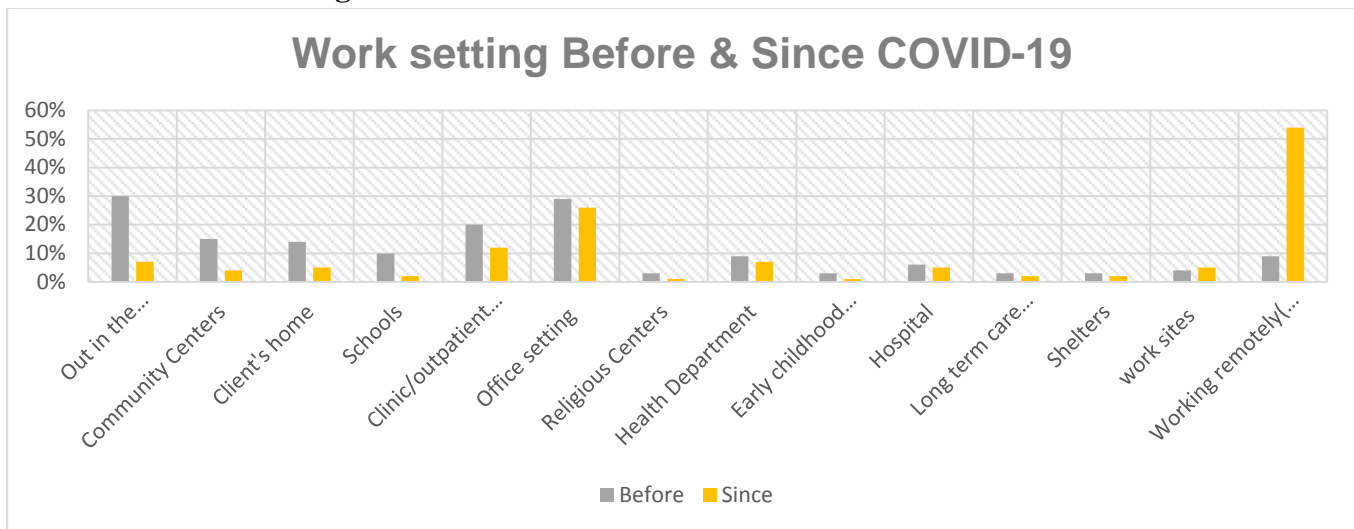
Figure 12. Proximity to person who tested positive for COVID 19

As indicated above figure, on the statement ‘have you been in close proximity to anyone who has tested positive for COVID 19 through your work as a CHW?’, 54(60%) of the respondents indicated no, 20(22%) of the respondents indicated yes and 17(18%) of the respondents indicated unsure on close proximity to someone who had tested positive for COVID-19. This shows that the respondents have a not been on close proximity to someone who had tested positive for COVID-19.

Hence the findings are in conformity that most people with COVID-19 will experience only mild to moderate symptoms. People with COVID-19 who do not have comorbidities or underlying health conditions placing them at risk for severe disease can often be cared for at home. Homebased care provided by CHWs to people with COVID-19 can help relieve the substantial burden the COVID-19 pandemic has placed on healthcare systems worldwide. Relying on CHWs can help maximize available resources for managing and caring for people with more severe illness and also can help maintain essential health services. Additionally, home-based care decreases the risk of infecting others during transport to and stay at the health facility.

Significant number of people infected with COVID-19 seek healthcare for their illness, making health care facilities very important in case detection. Clinicians suspect COVID-19 based on standard case definition and should report suspected cases via existing surveillance or early warning systems. COVID-19 case definitions should be shared with all reporting primary healthcare centers and clinicians, and displayed at each consultation room as feasible. It is also important to continue to monitor any significant increase in acute respiratory infections which may indicate undetected community transmission of COVID-19 that may require further investigation.

4.15. CHW Work Setting Pre and Since COVID 19 Pandemic



Source: Compiled from survey data June, 2021

Figure 13. Work setting before and since COVID 19.

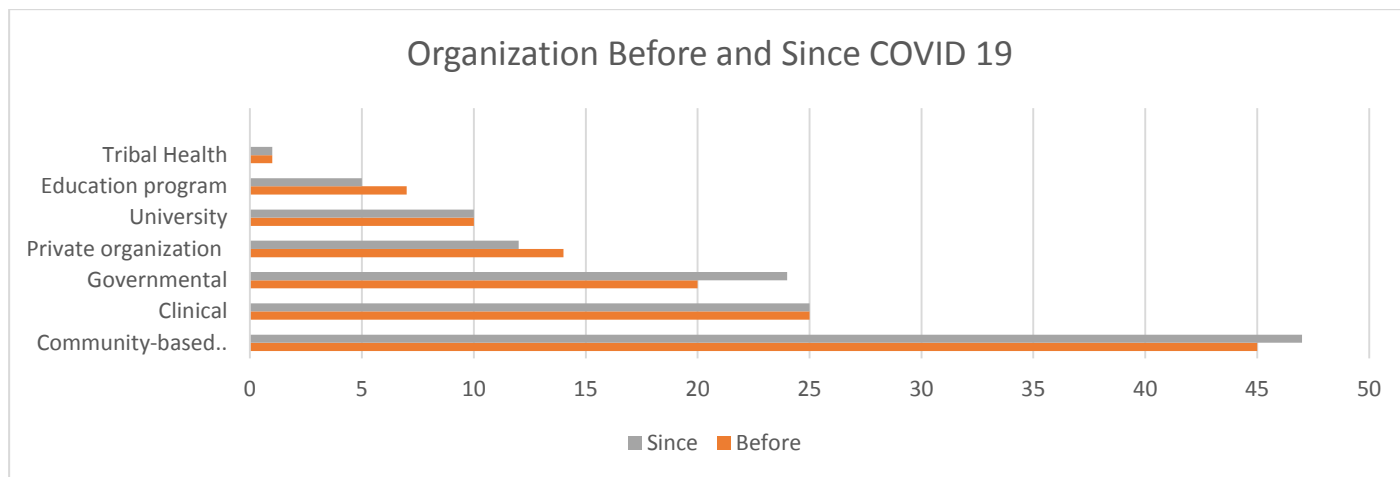
As indicated above figure, where CHWs worked before and since the pandemic, with multiple responses possible, CHW responses showed a variety of changes. There was an obvious increase in working in an office setting with a jump from 28.0% of CHWs before to 25.0% of CHWs since the pandemic. While none of the CHWs worked from home before the pandemic, 55.0% CHWs working remotely from home since the pandemic began. Several noticeable changes of CHWs working less in specific work settings happened since the pandemic: 15.0% of CHWs worked in clients' homes before, and 5.0% since the pandemic, 20.0% of CHWs worked at clinics or outpatient medical facilities before, and 12.0% since the pandemic, 15.0% of CHWs worked for community centers before, and 4.0% since the pandemic.

CHWs also reported working less in the following settings: 9.0% of CHWs worked for a health department before, and 7.0% since the pandemic, 30.0% of CHWs worked out in the community/on the streets before, and 5.0% since the pandemic, 3.0% of CHWs worked at nursing homes or long-term care facilities before, 2.0% since the pandemic, - 10.0% of CHWs worked at schools before, 2.0% since the pandemic. With 5.0% of CHWs responding both before and 4.0% since the pandemic working in hospitals: 3.0% of CHW worked for religious centers before and 1.0% since the pandemic.

When asked where CHWs worked before and since the COVID-19 pandemic began, one sees an increase of more than 55% in the percentage of CHWs working from home.

Further, since the pandemic began, CHWs worked less in the following settings: ‘out in the community’, ‘community centers’, ‘client’s homes’, ‘schools’, and ‘clinics’.

4.16. CHWs Employer/ Organization Pre and Since Covid 19 pandemic



Source: Compiled from survey data June, 2021

Figure 14. Types of CHWs Employer/ Organization Pre and Since Covid 19 pandemic

As indicated above, Some small changes occurred in the organizations that CHWs worked for since the COVID-19 pandemic began. Providing multiple responses to this question, CHWs indicated that the organizations they worked at most before the pandemic were Clinical Organizations (25, 25.0% responses), Community-based Organizations (47, 45.0% responses), Government Organizations (23, 20.0% responses), Tribal Health Centers or Health Departments (3, 3.0% responses). Education Programs before COVID-19 with 5.0% since, and 7.0% before for University, The few responses for Private Organization increased (12.0%) before to (14%) since the pandemic.

The key informant’s interview also conducted with Africa CDC, Investing in community health workers (CHWs) and community-based organizations help address the social determinants of poor health that disproportionately affect low-income, minority populations and that are magnified during times of crisis. These workers and organizations can help improve material conditions, facilitate access to health care systems, and provide psychosocial support.

Although the local clinical response to Covid-19 was swift and community-based organizations mobilized to meet rapidly increasing demand, limited access to information, health care, social support, and material

resources endangered people in many communities. The Africa CDC are among the health care organizations that incorporated CHWs into their multidisciplinary response to Covid-19 by setting up PACT initiative to drive forward the Africa Union Joint Continental Strategy for COVID-19 which aims to: Prevent the spread of COVID-19 . Prevent deaths from COVID-19. Reduce the social and economic harm linked to with COVID-19 in Africa. It focuses particularly on CHW tasks in the TRACE component of PACT as well as how they will support the TEST and TREAT components and implementing the PACT CHW initiative and share experiences, triumphs and challenges with implementing and scaling integrated community health systems towards the Universal Health coverage agenda.

4.17. Average Paid and Unpaid Hours Worked as a CHW Before and Since COVID 19.

Table 9: Average Paid and Unpaid Hours Worked as a CHW Before and Since COVID 19.

Average paid & unpaid hours worked as CHW before & since COVID-19		
	Before	Since
Paid hours worked as CHW/ week	37	36
Unpaid hours worked as CHW/week	15	28
Paid hours work related to COVID-19	28	16
Unpaid hours work related to COVID-19	20	20

Source: Compiled from survey data June, 2021

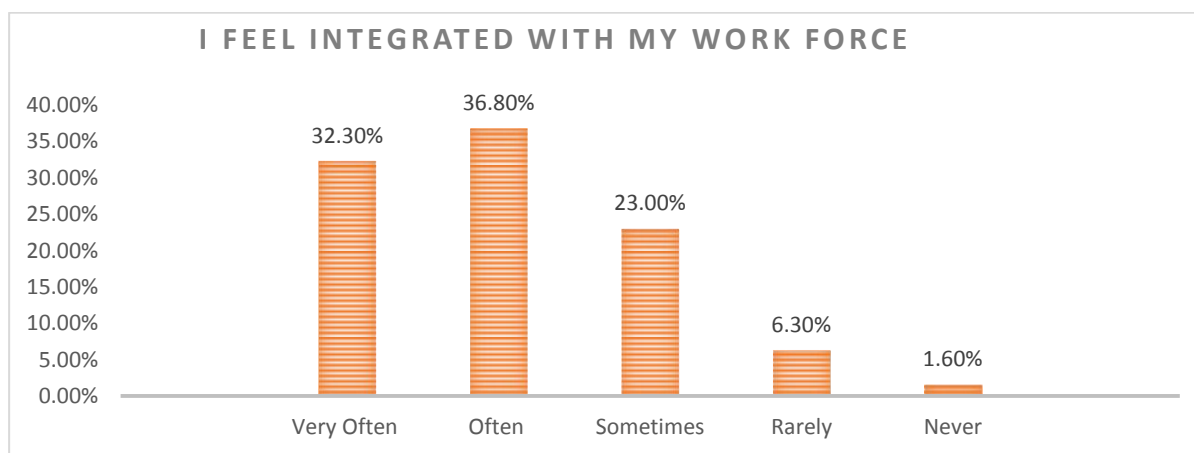
As shown in the above table, average paid & unpaid hours worked as CHW before & since COVID-19. The average hours worked, both paid and unpaid, before and since COVID-19, varied little. The average paid hours worked before and since is 37, with a range from 0 to 36 before. Unpaid hours before were 15, as opposed to 28 since (range of 0-17 on both). The hours of paid work related to COVID-19 since are 28 before and 16 since. unpaid hours work related before 20 and 20 since the pandemic. Paid hours worked by CHWs since the beginning of the COVID-19 pandemic have remained around the same since before the pandemic, averaging 36.5 hours weekly. The number of unpaid or volunteer hours worked by CHWs increased from an average of 15 hours to 28 hours each week. Additionally, CHWs report an average of 16 hours of paid work each week related directly to COVID-19.

CHWs did not increase their paid weekly hours, but dedicated almost two-thirds of these hours to work focused on COVID-19. CHWs mostly had positive experiences related to their work, seeing themselves as

very caring, integrated into their workforce, and connected to others. Almost all had health insurance and felt supported by their employers to address the pandemic while being protected by PPE.

4.18. Integration and Connection with Workforce.

Before COVID-19, health workers were already in short supply in many countries. The World Health Organization (WHO) identified 57 countries that have critical health workforce shortages, and it estimates a global health worker shortage of 18 million by 2030, primarily in low- and middle-income countries. Since the pandemic began, health workers have often been pulled from other services to respond to the emergency, challenging the health system to maintain the provision of essential services. As well, COVID-19 has degraded the global health workforce: Health workers have died from the disease or chosen to leave the profession; others succumbed to the physical and psychological toll. In short, they are overburdened, under-protected, stressed, and worn out. The pandemic has accelerated the need for country leaders to optimize their current health workforce to meet high and growing demands. But how can they do so?



Source: Compiled from survey data June, 2021

Figure 15. Integration and connection with workforce

As shown in figure14, over 37% of CHW feel very often integrated with their work, while 32% feel very often integrated to their work, 23% sometimes feel integrated to their work, 7% rarely feel integrated and over 2% never feel integrated to their work

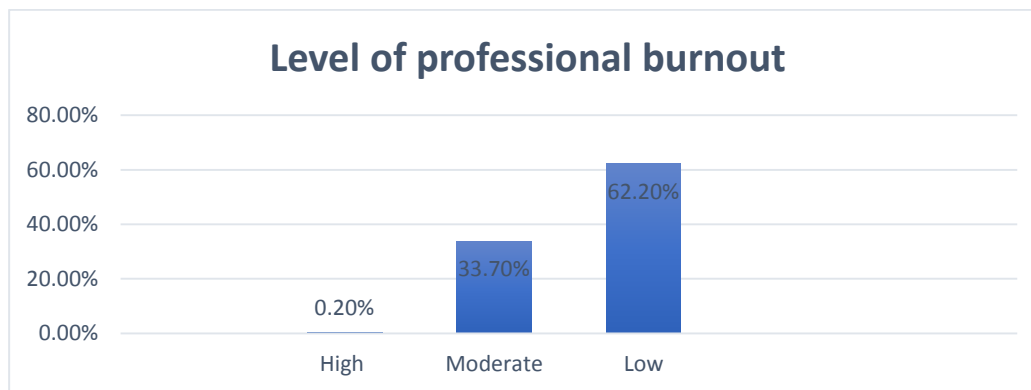
Professional quality of life for CHWs can be assessed by feelings of integration and connection with the workforce and feelings of professional burnout. Most CHW respondents reported feeling integrated into their workforce ‘often’ or ‘very often’

As seen above, CHWs received formal designation as a part of the essential workforce so their support and supply needs can be integrated into national planning. As observed in Africa CDC headquarters (Lotta et al., 2020), failure to identify CHWs as essential prevents their prioritization for receipt of PPE and leads to

mistrust of CHWs. It also might limit CHW’s access to the vaccine. Plans about who to prioritize during dissemination of the vaccine vary depending on country, state, and local decisions (Saleh et al.,2020).

As of December 22, 2020, community health workers were explicitly mentioned in only eight of the fifty US state COVID-19 vaccination distribution plans. These states are Alaska, California, Delaware, Florida, Maine, New Jersey, North Carolina, and Washington. CHWs are included as a priority group in phase 1 distribution in all of these regions, with the exception of Florida and Maine. Virginia includes “public health workers” as Phase 2 recipients of the vaccine without elaborating on what a public health worker is other than to say that they are “patient facing.” But what is a patient? Some CHWs during the pandemic visited homes to provide routine COVID-19 surveillance, education, and patient check-ins (Columbia, 2020). Others helped the recently unemployed apply for food stamps and find food pantries. In both scenarios, a CHW is risking potential virus exposure to provide an essential public health service, but under the current Virginian vaccination plan, will these groups of CHW receive different prioritization? By formally designating CHWs as an essential workforce, ambiguities like these could be avoided.

4.19. Level of Professional Burnout



Source: Compiled from survey data June, 2021

Figure 16. Level of professional burnout

As indicated in figure 14, on the level of professional burnout, 62.20% of the respondents indicated level of burnout, are rated as ‘low’ the majority of the time, with 33.70% reporting a ‘moderate’, 0.20% indicated high level of professional burnout during the pandemic. This implies that majority of respondents indicated low level of professional burnout.

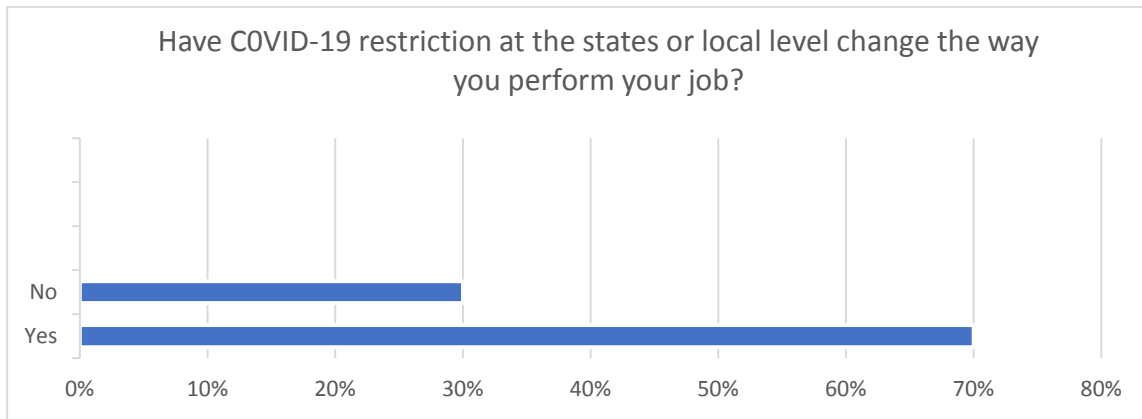
As analysis above, burnout in healthcare workers is widely understood as having three separate dimensions, sometimes referred to as three sub-syndromes: emotional exhaustion (EE), which is described

as feelings of being exhausted or overextended; cynicism (CY), or depersonalization, which is the phenomenon that health workers distance themselves from recipients of their care; and reduction in personal achievement (PA), which manifests as feelings of incompetence and dissatisfaction (Freudenberger, 1974; Selamu et al., 2019). Burnout can have a variety of negative consequences that threaten the well-being of health workers including physical health problems such as cardiovascular diseases, the hypothalamic–pituitary–adrenal (HPA) axis dysregulation and chronic fatigue, as well as psychological health problems such as suicidality, depression, and substance abuse (Dyrbye et al., 2014; Melamed et al., 1992; Penz et al., 2018; Rath et al., 2015; Rose et al., 2017).

One of the most salient problems being highlighted is not only the lack of mental health literacy among frontline health workers in utilizing skills such as self-resilience, but also the lack of mental health support from their governmental agencies and institutions. With frontline health workers such as CHWs representing the essential workforce for primary care, more studies focused on the mental health and wellbeing of these health workers during and after containment of COVID-19 will be needed. Investigations into how to sustain this workforce and best prevent burnout should be prioritized and appropriate changes in policies and practice should be implemented

COVID-19 crisis has been increasing the burden of healthcare workers in acute care geriatric facilities. These workers have been dealing with drastic changes in the care they provide to their residents including cancelation of group activities and communal dining and even restrictions of activities outside rooms. Healthcare workers have also been devoting more time and energy to perform COVID-related medical duties. Geriatric facilities have been facing.

4.22. CHW Effect of state of COVID 19 on Job Execution



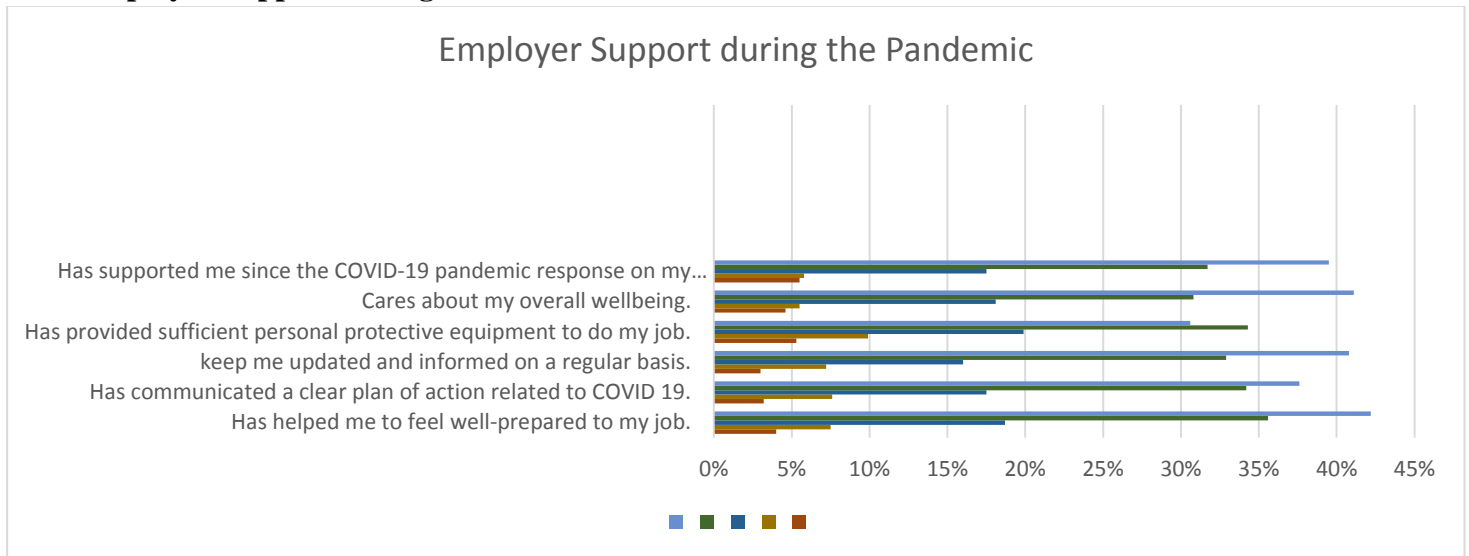
Source: Compiled from survey data June, 2021

Figure 17. Effect of state of COVID 19 on job execution

As indicated in the above, regarding the statement ‘have COVID-19 restriction at the states or local level change the way you perform your job’, 80% of the respondents indicated yes and 30% of the respondents indicated no on effect of state of COVID 19 on job execution. This shows that the respondents have a majority level of agreement towards the statement. CHWs offered details for their affirmative responses

In response to the analysis above, CHWs COVID-19 restrictions required that CHWs adjusted their work to an office setting. CHWs shared that they were working more from the office and interacting with their clients on the phone or virtually (make appointments and call to make sure they are doing ok; help with office duties). Respondents reported the loss of direct interactions (no home visits, no face-to-face, less clinic time), and the loss of transportation services (can no longer transport patients to hospitals). Due to the pandemic, they only made emergency home visits, or dropped off food or medicine curbside. One CHW stated that they saw and felt the isolation and disconnect to the clients. Another CHW reported that the COVID-19 restrictions had led to an increase in job duties for CHWs.

4.22. Employer Support during the Pandemic.



Source: Compiled from survey data June, 2021

Figure 18 . Employer support during the pandemic

As indicated on above on employer support during the pandemic When asked how they felt about their employer’s support during COVID-19, the CHWs could answer with multiple responses, and reported with a mix of Agree and Strongly Agree thus reporting positive employer support. Support included preparation for the job, communicating a plan of action related to COVID-19, regularly keeping CHWs updated and informed, and providing sufficient PPE for the job.

As indicated, the result of the descriptive statistics from figure16 indicate that all variables are evaluated based on 5-point Likert scale (1 strongly disagree to 5 strongly agree). 4% of the respondents are strongly disagree, 8% of the respondents are dis agree, 19% of the respondents are neutral 36% of the respondents are agree, 42% of the respondents are strongly agree ‘has helped me to feel well-prepared to my job’. Which implies that most of the respondents strongly agree on helping them to feel well prepared to their job.

As shown, regarding the statement ‘has communicated a clear plan of action related to COVID 19’, 3% of the respondents are strongly disagree, 8% of the respondents are dis agree, 18% of the respondents are neutral 34% of the respondents are agree, 38% of the respondents are strongly agree. Which implies that most of the respondents strongly agree on employer support during the pandemic.

As shown, regarding the statement ‘keep me updated and informed on a regular basis’. 3% of the respondents are strongly disagree, 7% of the respondents are dis agree, 16% of the respondents are neutral, 33% of the respondents are agree, 41% of the respondents are strongly agree. Which implies that most of the respondents strongly agree on employer support during the pandemic.

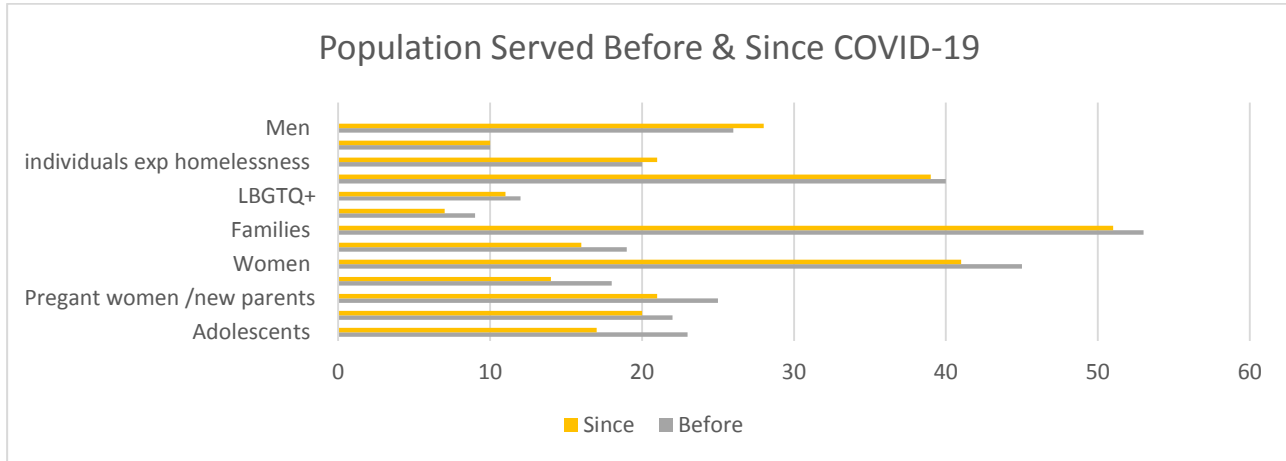
Furthermore, as shown, regarding the statement ‘has provided sufficient personal protective equipment to do my job. 5% of the respondents are strongly disagree, 10% of the respondents are disagree, 20% of the respondents are neutral, 34% of the respondents are agree, 31% of the respondents are strongly agree. Which implies that most of the respondents are agree and slightly strongly agree on employer support during the pandemic.

In addition, as shown, regarding the statement ‘cares about my overall wellbeing’. 5% of the respondents are strongly disagree, 6% of the respondents are disagree, 18% of the respondents are neutral, 31% of the respondents are agree, 41% of the respondents are strongly agree. Which implies that most of the respondents strongly agree and slightly strongly agree on employer support during the pandemic.

As shown, regarding the statement ‘has supported me since the COVID-19 pandemic response on my community. 6% of the respondents are strongly disagree, 6% of the respondents are disagree, 18% of the respondents are neutral, 33% of the respondents are agree, 40% of the respondents are strongly agree. Which implies that most of the respondents strongly agree and slightly strongly agree on employer support during the pandemic.

The key informant’s interview conducted with Africa CDC, an employer of community health workers (CHWs), play an integral role in keeping CHW workforce and the clients they serve safe, especially during the COVID-19 pandemic. By incorporating preventive measures, they can better ensure the health and safety of CHWs as they perform essential services in communities. Employers also more effectively protect organization from liability and risk. Begin by recognizing that the business has its own needs and priorities when it comes to adapting to the COVID-19 pandemic and that there are resources to support the workforce. they may first need to find information on how to safely reopen business, either in-person or by adapting it for virtual operations. Then, may benefit from understanding the roles of CHWs during COVID-19 by watching CDC’s recent webinar recording and finally they can review steps on how to protect their workforce and how to monitor and adapt policies as new information and data become available.

4.23. Population Served Before & Since COVID-19.



Source: Compiled from survey data June, 2021

Figure 19. Population served before and since COVID 19

With multiple responses possible, CHWs reported that the population served before and since COVID-19 remained relatively the same. CHWs increased services for families, recent immigrants, and veterans since the pandemic, but decreased services for other groups, in particular adolescents, infants and children, individuals with disabilities, homeless individuals, LBGTQ+, and pregnant women or new parents. The largest group served, older adults, only seemed to have a minimal decrease in CHW services

As indicated on the population served before and since COVID 19, 23% of the respondents indicated before on adolescents and 17% of the respondents indicated since on adolescents this means that the respondents have a medium level of population on adolescents served before and since the pandemic.

As indicated on the population served before and since COVID 19, 22% of the respondents indicated before on infants/children and 20% of the respondents indicated since on adolescents. This means that the respondents have a medium level of population on infants/children served before and since the pandemic.

As indicated on the population served before and since COVID 19, 25% of the respondents indicated before on pregnant women /new parents and 21% of the respondents indicated since on pregnant women /new parents. This means that the respondents have a medium level of population on pregnant women /new parents served before and since the pandemic.

As indicated on the population served before and since COVID 19, 18% of the respondents indicated before on recent immigrants and 14% of the respondents indicated since on recent immigrants. This means

that the respondents have a medium level of population on recent immigrants before and since the pandemic.

As indicated on the population served before and since COVID 19, 45% of the respondents indicated before on women and 41% of the respondents indicated since on women. This means that the respondents have a medium level of population on women before and since the pandemic.

As indicated on the population served before and since COVID 19, 19% of the respondents indicated before on individuals with disabilities and 16% of the respondents indicated since on individuals with disabilities. This means that the respondents have a medium level of population on individuals with disabilities before and since the pandemic.

As indicated on the population served before and since COVID 19, 45% of the respondents indicated before on families and 51% of the respondents indicated since on families. This means that the respondents have a medium level of population on families before and since the pandemic.

As indicated on the population served before and since COVID 19, 9% of the respondents indicated before on refugees and 7% of the respondents indicated since on refugees. This means that the respondents have a medium level of population on refugees with before and since the pandemic.

As indicated on the population served before and since COVID 19, 12% of the respondents indicated before on LBGTQ+ and 11% of the respondents indicated since on LBGTQ+. This means that the respondents have a medium level of population on LBGTQ+ with before and since the pandemic.

As indicated on the population served before and since COVID 19, 40% of the respondents indicated before on older adults and 39% of the respondents indicated since on older adults. This means that the respondents have a medium level of population on older adults with before and since the pandemic.

As indicated on the population served before and since COVID 19, 20% of the respondents indicated before on individuals exp homelessness and 21% of the respondents indicated since on individuals exp homelessness. This means that the respondents have a medium level of population on individuals exp homelessness with before and since the pandemic.

As indicated on the population served before and since COVID 19, 10% of the respondents indicated before on veterans and 10% of the respondents indicated since on veterans. This means that the respondents have a medium level of population on veterans with before and since the pandemic.

As indicated on the population served before and since COVID 19, 26% of the respondents indicated before on men and 28% of the respondents indicated since on men. This means that the respondents have a medium level of population on men with before and since the pandemic.

4.24. Community wellbeing Before and Since COVID 19

Table 10: Community wellbeing Before and Since COVID 19

	Before	Since	Change
% CHW who rate community as well	52	12	-40
% CHW who rate community as unwell	9.5	60	50.5
% Change	0.18	5	NA

Source: Compiled from survey data June, 2021

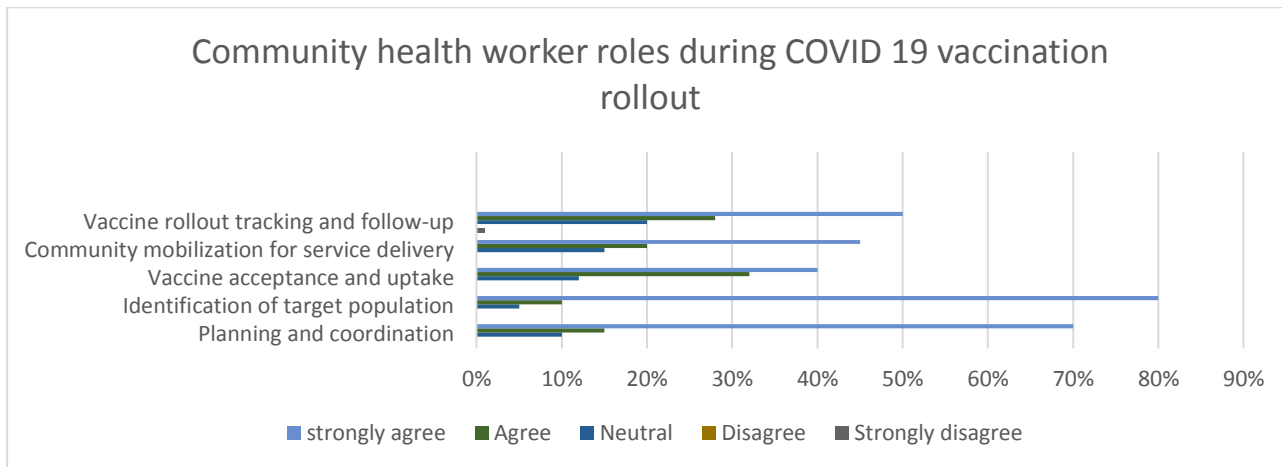
When asked about to rate the well-being of the community they served before and since the COVID pandemic began, 52% rated their community as “well” before and 12% rated “well” since the pandemic before. Additionally, 9.5% rated their community as “unwell” before and 60% rated “well” since the pandemic before.

Hence the findings are conformity with the response to coronavirus (COVID-19) that has demonstrated the contribution that communities make to public health. Community life is essential for health and wellbeing, and we are all more aware of the value of social connections, neighborliness, sense of belonging, control, and mutual trust. (Jude Stansfield, Tom Mapplethorpe and Jane South, Posted on:1 June 2020 Coronavirus)

More so, Communities are designed to be used or deployed by individuals, organizations, and governments to reduce COVID-19 transmission in the community. These measures include physical distancing and mask wearing, risk communication and disease education, and interventions like contact tracing.

Transmission levels in the community may vary from minimal to substantial, and different mitigation activities will be appropriate for different scenarios. During periods of minimal transmission, communities should prepare for increased transmission. Communities’ activities are tailored to both the transmission scenario and the specific community and setting. Links to additional population-specific or setting-specific guidance for the mitigation activities being used are provided, when available. (CDC,2020).

4.25. Key Community Wealth Worker Roles in the COVID-19 Vaccines Rollout



Source: Compiled from survey data June, 2021

Figure 20. CHW roles during COVID 19 vaccination rollout

As indicated above on the roles of CHWs during COVID 19 vaccination rollout, 50% of the respondents chose strongly agree, 28% of the respondents chose agree, 20% of the respondents chose neutral and 1% of the respondent chose disagree on the vaccine rollout tracking and follow-up during COVID 19 pandemic. This implies that most of the respondents strongly agree on the vaccine rollout tracking and follow-up during the pandemic.

As indicated above on the roles of CHWs during COVID 19 vaccination rollout, 45% of the respondents chose strongly agree, 20% of the respondents chose agree, 15% of the respondents chose neutral, no respondent chose disagree and strongly disagree on the community mobilization for service delivery during COVID 19 pandemic. This implies that most of the respondents strongly agree on the community mobilization for service delivery during the pandemic.

As indicated above on the roles of CHWs during COVID 19 vaccination rollout, 40% of the respondents chose strongly agree, 32% of the respondents chose agree, 12% of the respondents chose neutral, no respondent chose disagree and strongly disagree on the vaccine acceptance and uptake during COVID 19 pandemic. This implies that most of the respondents strongly agree on the vaccine acceptance and uptake during the pandemic.

As indicated above on the roles of CHWs during COVID 19 vaccination rollout, 80% of the respondents chose strongly agree, 10% of the respondents chose agree, 5% of the respondents chose neutral, no respondent chose disagree and strongly disagree on the identification of target population during COVID

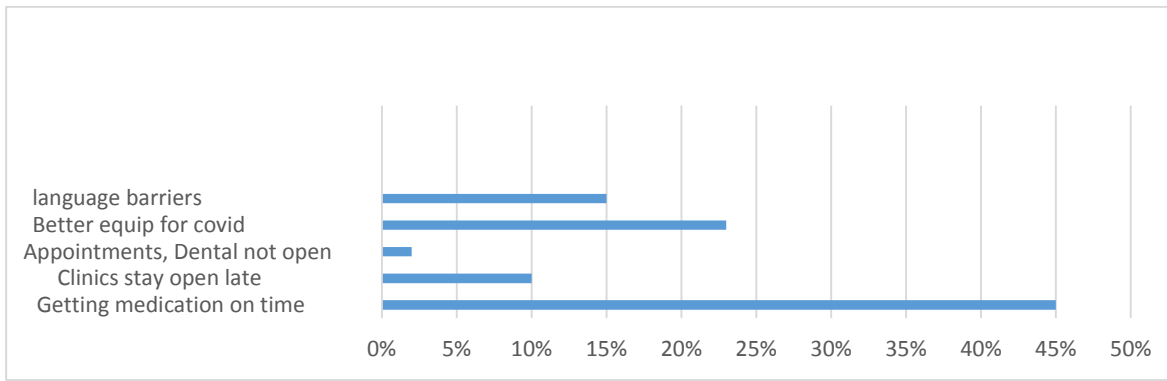
19 pandemic. This implies that most of the respondents strongly agree on the identification of target population during the pandemic.

In addition, as indicated above on the roles of CHWs during COVID 19 vaccination rollout, 70% of the respondents chose strongly agree, 15% of the respondents chose agree, 10% of the respondents chose neutral, no respondent chose disagree and strongly disagree on the planning and coordination during COVID 19 pandemic. This implies that most of the respondents strongly agree on the planning and coordination during the pandemic.

According to findings from the Africa CDC, CHWs have a critical role to play in reaching all people with the COVID-19 vaccine, as outlined in the WHO/UNICEF Implementation support guide: The Role of Community Health Workers in COVID-19 Vaccination that was jointly developed with the Community Health Impact Coalition. These roles include: Planning: Utilizing knowledge and community consultations to inform national and subnational vaccine delivery planning processes. Connecting: Identifying vulnerable populations who are outside of the reach of health facilities and connecting them to immunization centers or facilitating community-based immunizations. Demand Generation: Generating demand for vaccines by overcoming vaccine hesitancy through building trust with communities, providing accurate information, and encouraging vaccine uptake. Tracking and Reporting: Tracking vaccine delivery in communities, monitoring for and reporting adverse events following immunizations, and identifying individuals who have missed scheduled immunizations. Expanding the Health Workforce: Providing vaccinations when appropriately trained, equipped, and adequately supervised.

4.26. Community Concerns on COVID 19

The CHWs were asked to list the 3 most concerning issues faced by the community members they served. CHWs provided 42 responses to this open-ended question. Using the Social Determinants of Health framework (Artiga & Hinton, 2018; USDHHS, 2021), the responses were grouped into 3 themes: Access to Health Care, Resources, and Health Issues. Each of these themes included multiple responses. Access to Health Care responses included “Getting medication on time”, “Clinics stay open late”, “Appointments, Dental not open”, “Better equip for covid”, and “language barriers”. Resources included responses such as “food”, “food insecurity”, “transportation”, “housing” “income”, and “lack of community resources”. Health Issues included responses such as “Health”, “Wellness”, “Chronic health issues”, and “Accident”. The word cloud below (Figure 19) shows the 30 most frequently mentioned words with at least 4 letters mentioned by CHWs in response to the question on most concerning issues.

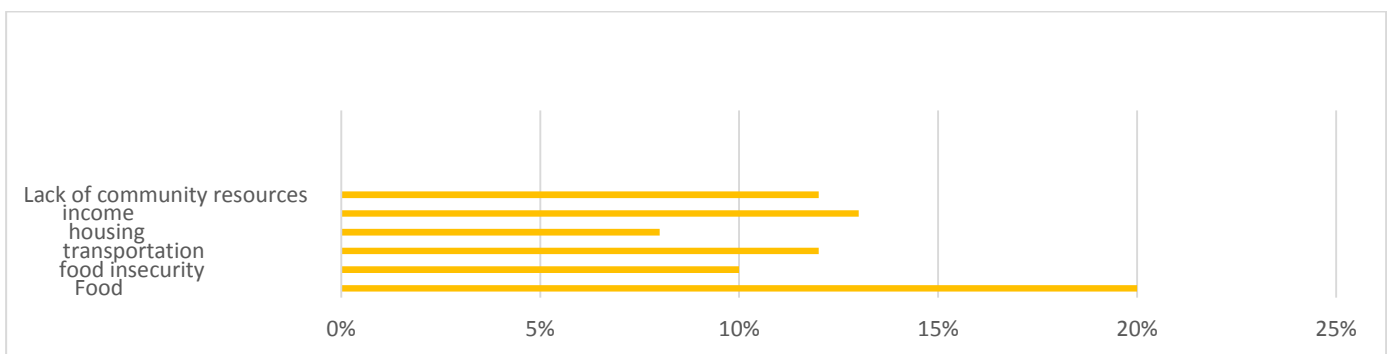


Source: Compiled from survey data June, 2021

Figure 21. Communities' access to health care responses

As indicated above figure, concerning issues faced by the community members CHWs served on the aspect of access to health care response, 45% Of the respondents indicated getting medication on time, 10% of the respondents indicated clinics stay open late, 2% of the respondents indicated during appointment dental not open, 23% Of the respondents indicated better equip for COVID 19 and 15% of the respondents indicated language barriers on aspect of access to health care response during the pandemic. This implies that the communities have a medium level of access to resources response during the pandemic

From the above findings, pre-COVID-19, diagnostic and treatment services were available for slum dwellers, preventive services were well used but services for mental health and gender-based violence were limited or non-existent. Stakeholders perceive a reduction in access to all healthcare services in slums during COVID-19 lockdowns, with inconsistent and inadequate attention given to ameliorating this. Access barriers include increased cost of healthcare, reduced household income, increased challenges in physically reaching healthcare facilities and exacerbated reluctance of residents to seek healthcare due to fear of infection and stigmatization.

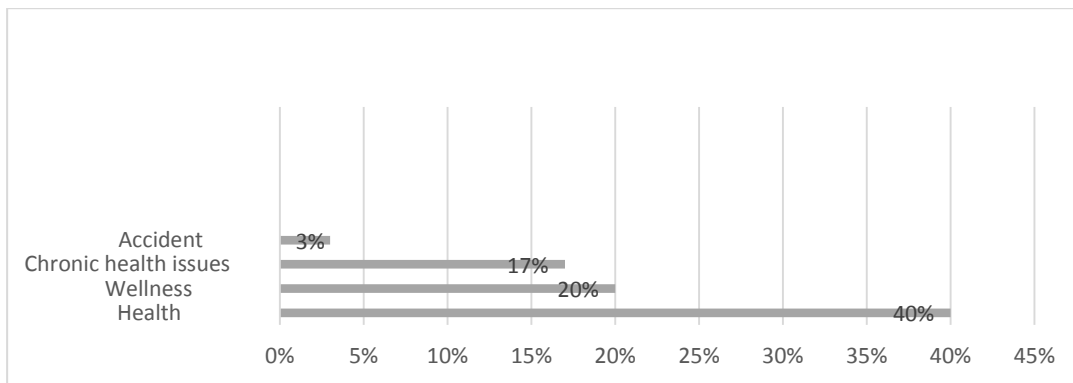


Source: Compiled from survey data June, 2021

Figure 22. Access to resources response

As indicated above figure, concerning issues faced by the community members CHWs served on the aspect of access to resources response, 20% Of the respondents indicated food, 10% of the respondents indicated food security, 12% of the respondent's indicated transportation, 8% Of the respondents indicated housing, 13% of the respondent's indicated income and 12% of the respondents indicated lack of community resources on the aspect of access to resources response during the pandemic. This implies that the communities have a medium level of access to resources response during the pandemic.

According to findings from Africa CDC, The COVID-19 pandemic is a health and human crisis threatening the food security and nutrition of millions of people around the world. Hundreds of millions of people were already suffering from hunger and malnutrition before the virus hit and, unless immediate action is taken, we could see a global food emergency. In the longer term, the combined effects of COVID-19 itself, as well as corresponding mitigation measures and the emerging global recession could, without large-scale coordinated action, disrupt the functioning of food systems. Such disruption can result in consequences for health and nutrition of a severity and scale unseen for more than half a century



Source: Compiled from survey data June, 2021

Figure 23. Health issues Reponses.

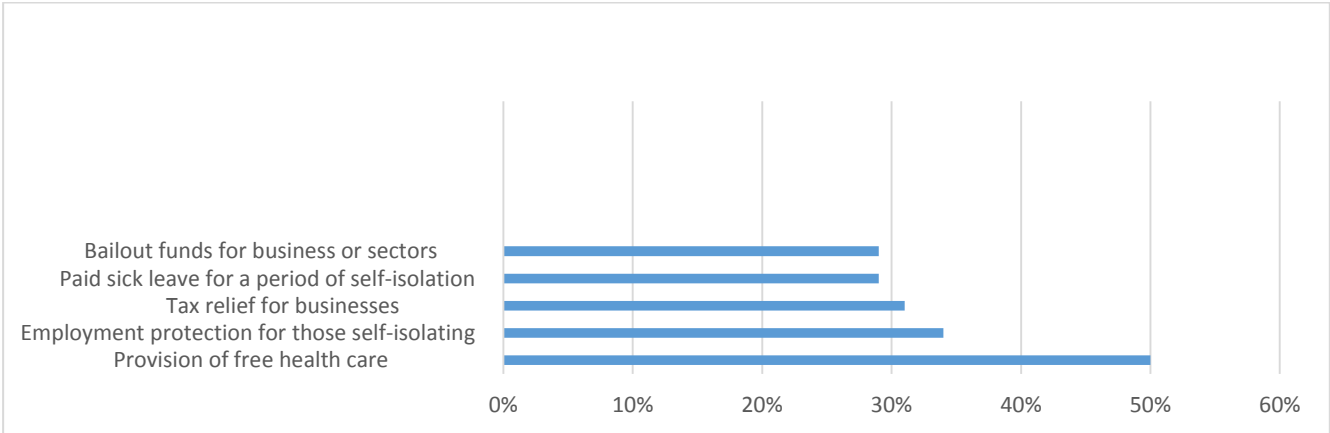
As indicated above figure, concerning issues faced by the community members CHWs served regarding the aspect of access to health issues response, 40% Of the respondents indicated health, 20% of the respondent's indicated wellness, 17% of the respondents indicated chronic health issues, and 3% of the respondent's indicated accident regarding health issues response during the pandemic. This implies that the communities have a majority level of health issues response during the pandemic.



Source: WHO. (2020)

Figure 24. Most common issues face by community members during the pandemic

CHWs thought that the most concerning issues faced by community members that they had observed centered on social determinants of health, in particular Resources, Access to Health Care, and Health Issues. CHWs were predominantly concerned about their communities’ need for resources, and they saw the highest need for resources related to food, transportation, and paying for utilities. Access to health care included a need for clinics to be open, appointments to be made, and medications received on time. Some CHWs mentioned the need for health care systems to be better prepared for epidemics. Health issues observed seemed to reflect a continuity of issues that preceded the pandemic, for example chronic issues and accidents.



Source: Compiled from survey data June, 2021

Figure 25. What are the most concerning faced by covid 19?

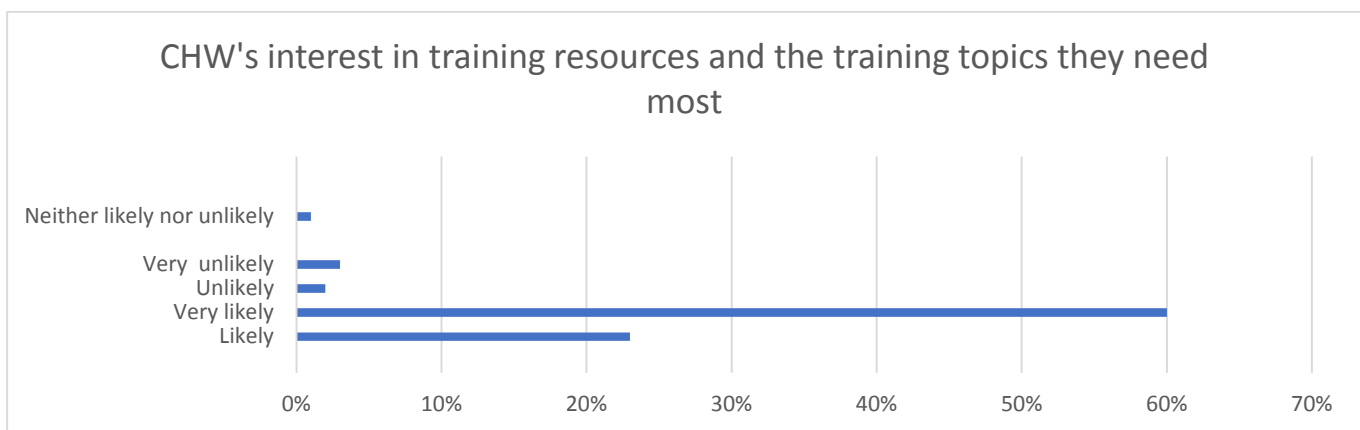
According to figure 19, asked about what are the most concerning issues faced by the community members, 28% reposed having bailout funds for business or sectors. 28% paid sick leave for a period of

self-isolation, 31% tax relief for businesses, 34% employment protection for those self-isolating and 50% provision of free health care.

A follow-up question asked CHWs to rate the change in the level of concern in the community about the issues they just identified on a scale from 1-5, with 5 being the most change.). The themes resources, followed by access to health care, captured the two most concerning issues with the largest change in level of concern.

This section describes the part of the study that asked CHW respondents the questions: 1) “Since the pandemic began, what are the most concerning issues faced by the community members that you serve?” These questions reflect CHWs’ unique and important insights on the issues facing the community in addition to their insights on potential solutions. A recurring theme for both questions was concern about and/or improving food access. Another important theme was access to COVID-19 testing sites, PPE (personal protective equipment), and information about COVID-19. CHWs were concerned about contracting SARS-CoV-2 (severe acute respiratory syndrome coronavirus) and becoming sick with COVID-19 illness. Other notable topics included loneliness, depression, and poor or no internet access. In terms of identified needs of their communities, CHWs listed some of the following responses: Food pantries, food drives. “Education and information on preventive measures at home and in the event of a shortage of disinfectant and sanitizing products, provide the tools to prepare them at home.”

4.27 Training Resources on COVID 19 by CHWs



Source: Compiled from survey data June, 2021

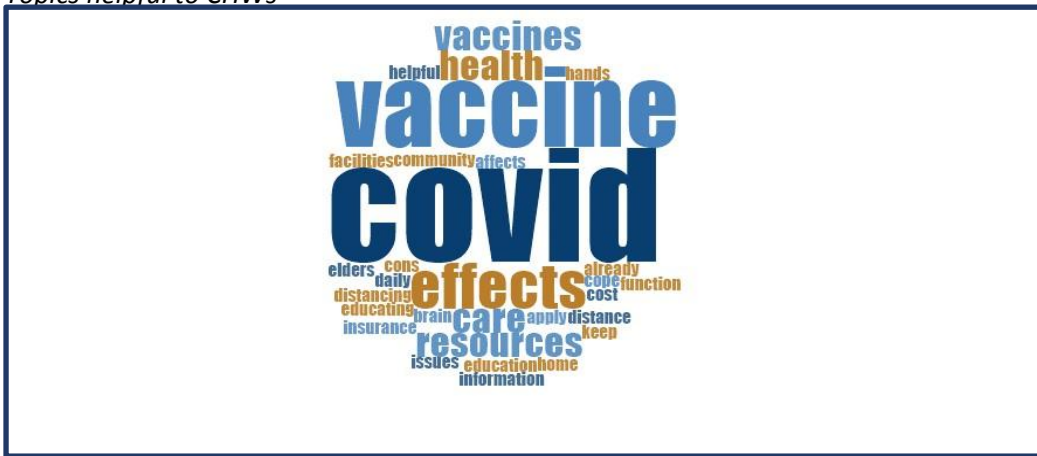
Figure 26. Community health worker likelihood to take a CHW COVID training

The figure 20 above show focuses on CHW’s interest in training resources and the training topics they need most. As indicated in the above figure, 23% of the respondents indicated likely, 60% of the respondents

indicated very likely, 2% of the respondents indicated unlikely, 3% of the respondents indicated very unlikely and 1% of the respondent indicated neither likely or unlikely CHWs were to take a free, self-paced, online training related to COVID-19 created for CHWS.

From the findings, CHWs expressed interest in taking a free, self-paced online COVID-19 training specific to CHWs. They were most interested in information about the COVID-19 vaccine and facts about COVID-19. Some CHWs also expressed interest in topics related to community education about COVID-19 and preventive measures, as well as information on access to resources addressing SDOH needs. The CHWs' training interests reflected their involvement in the COVID-19 response in Africa CDC headquarters, Addis Ababa, and their knowledge of their communities' needs. Over the past few months, CHW specific online-trainings with a focus on COVID-19 have been made available in the U.S. (MCD, 2021; MHP Salud, 2021).

Topics helpful to CHWs



Source: WHO.2020

Figure 27. Topics helpful to CHWs

Asked about what topics would be most helpful for CHWs if they were presented in a free, self-paced online COVID-19 training, 21 respondents specified topics of interest. The two most frequently mentioned topics focused on (1) information about COVID-19 vaccine, including pro and cons, where to get it, and after vaccine care, and (2) facts about COVID-19, including prevention, symptoms, and impact on body, mental health, and health issues. Other topics mentioned less frequently were (1) educating the community about COVID-19 and preventive measures (mask, distance, wash hands, stay home), and (2) resources in general, and access to Medicaid/Medicare insurance and low-cost medical care in particular.

To conclude, the research investigated the essentials core roles and competences change by community health workers during Covid-19 Pandemic. As the COVID-19 pandemic arrived, infection and mortality rates increased, and the health care system became overburdened, public and academic attention focused on epidemiological and medical professions. Little attention was granted to how COVID-19 impacted communities and the community-based workforce, including Community Health Workers (CHWs), although the disproportionate COVID-19 burdens of non-white, socioeconomically disadvantaged. Closely connected to the communities they serve, CHWs were in a unique and strategic position to contextualize these COVID-19 disparities, including with a focus on persisting social determinants of health needs, and to support equitable COVID-19 response efforts (Chowkwanyun & Reed 2020; Van Beusekom 2020; Wood 2020).

As CHWs continued to serve their clients in both familiar and new roles, they put themselves into harm's way. CHW organizations as well as CHW allies began to investigate how CHWs were impacted by COVID19 and provided resources for CHWs. At the national level, the National Association of Community Health Workers (NACHWs) advocated for the CHW workforce and offered resources (NACHW, 2021), as did the CDC (CDC, Resources for CHWs, 2020). In Africa CDC headquarters Addis Ababa, CHW allies and CHWs partnered to learn about the roles and impact of the pandemic and appropriate responses. The CHW COVID-19 Survey that was first developed and distributed in in Africa CDC headquarters in April 2021, aimed to assess the roles and impact of the pandemic on the CHW workforce, identify training needs and opportunities to prepare CHWs for the ongoing and future public health emergencies, and understand urgent needs of CHWs and the communities they served in November 2021.

The Africa CDC published COVID-19 Managements: Curriculum for Community Health Workers, this study to document the experiences and perceptions of CHWs on how the COVID-19 pandemic impacted their work at organizations and with communities, as well as perceived CHW and community needs.

Community health workers (CHWs) are lay members of the community who work either for pay or as volunteers in association with the local health care system in both urban and rural environments. CHWs usually share ethnicity, language, socioeconomic status, and life experiences with the community members they serve. They have been identified by many titles, such as community health advisors, lay health advocates, promotoras, outreach educators, community health representatives, peer health promoters, and peer health educators. CHWs offer interpretation and translation services, provide culturally appropriate health education and information, help people get the care they need, give informal counseling and

guidance on health behaviors, advocate for individual and community health needs, and provide some direct services such as first aid and blood pressure screening.

Since CHWs typically reside in the community they serve, they have the unique ability to bring information where it is needed most. They can reach community residents where they live, eat, play, work, and worship. CHWs are frontline agents of change, helping to reduce health disparities in underserved communities.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

Chapter five is conclusion and recommendation. In the conclusion, the results of the research are reviewed against the objectives and methodologies and present the findings. It also interprets the results against literatures and theories reviewed under this research. Finally, the recommendation winds-up by forwarding strategies that addresses the problems identified by the research.

5.1. Conclusion

Community health workers (CHWs) are lay members of the community who work either for pay or as volunteers in association with the local health care system in both urban and rural environments. CHWs usually share ethnicity, language, socioeconomic status, and life experiences with the community members they serve. They have been identified by many titles, such as community health advisors, lay health advocates, promotor as, outreach educators, community health representatives, peer health promoters, and peer health educators. CHWs offer interpretation and translation services, provide culturally appropriate health education and information, help people get the care they need, give informal counseling and guidance on health behaviors, advocate for individual and community health needs, and provide some direct services such as first aid and blood pressure screening.

Since CHWs typically reside in the community they serve, they have the unique ability to bring information where it is needed most. They can reach community residents where they live, eat, play, work, and worship. CHWs are frontline agents of change, helping to reduce health disparities in underserved communities.

The global response to the COVID-19 pandemic has underscored the need for CHW programming to meet community needs for education, prevention, and treatment services. To effectively serve communities, CHWs need to be recognized as integral members of the health workforce, equipped to serve in ways that protect them as workers and the populations they serve, and provided with fair pay, mental health services, and other care to ensure their wellbeing and sustain their work. As vaccine distribution rolls out, we should clearly define the CHW role to ensure they receive timely access to protective and preventive commodities and to ameliorate their fears of providing care to patients infected with the virus. CHWs will play a pivotal role in educating individuals about mobilizing communities for vaccination if policy makers and program managers define their roles, place them at the front of the line for the vaccine and equip

them with the information they need to inform community members. The lessons learned during 2020 about the role and needs of CHWs in fighting the pandemic should be considered as we prepare for the next phases of the COVID-19 fight and for future pandemics.

5.2. Recommendations

The findings of the study indicated the important implications for the intervention of CHW roles and competence. The recommendations are regarded to be necessary to improve the quality roles of CHWs These include:

1. To effectively carry out the above important functions, CHWs are to be part of a supportive health system that ensures that they are trained, equipped, digitally empowered, supervised, and compensated. Africa CDC and our partners call on governments to implement the following recommendations in line with Assembly decision by the AU Heads of states and Governments on the 2 million CHW Initiative Assembly/AU/Dec.649 (XXIX) and the developed WHO guideline
2. Recognition of CHWs as essential to every step of the vaccination process, including recruitment, education, tracking and administration.
3. Investment in vaccine delivery should include investments in training, remunerating, equipping, and supervising CHWs in country vaccine delivery plans.
4. Country planning units convene EPI units, CH directorates, COVID-19 planning teams, and partners to integrate CHWs into National Deployment and Vaccination Plans, including counting and prioritizing CHWs and frontline workers in the application of COVID-19 vaccines.
5. Align other COVID-19 funding from domestic resources or donors to scale up at least 100,000 CHWs for COVID-19 response who can then be integrated into the routine public health system.
6. Country MOHs convene CH directorates and public health institutions to begin developing an “integration plan” that (1) identifies how emergency response CHWs can be integrated into the formal health workforce and (2) how CHWs can be integrated into disease surveillance networks to prevent the next pandemic.

References

- Adair, Richard; Wholey, Douglas R.; Christianson, Jon; White, Katie M., Britt, Heather; Lee, Suhna. (2013). Improving Chronic Disease Care by Adding Laypersons to the Primary Care Team: A Parallel Randomized Trial. *Ann Intern Med.* 2013; 159(3):176-184.
- Agency for Healthcare Research and Quality. (2010). Connecting those at risk to care. A guide to building a community “HUB” to promote a system of collaboration, accountability, and improved outcomes. Retrieved on December 13, 2015, from <http://chapohio.net/press/wp-content/uploads/2010/09/CommunityHUBManual3.pdf>.
- Akalu Y, Ayelign B, Molla MD. <p>Knowledge, Attitude and Practice Towards COVID-19 Among Chronic Disease Patients at Addis Zemen Hospital, Northwest Ethiopia. <! [CDATA [Infection and Drug Resistance]]>. 2020.
- Alam, K., Tasneem, S., & Oliveras, E. (2012). Performance of female volunteer community health workers in Dhaka urban slums. *Social science & medicine*, 75(3), 511-515. Retrieved on August 25, 2015, from http://www.researchgate.net/profile/Khurshid_Alam9/publication/224976963_Performance_of_female_volunteer_community_health_workers_in_Dhaka_urban_slums/links/00b49534213e423785000000.pdf.
- Allen, J. K., Dennison-Himmelfarb, C. R., Szanton, S. L., Bone, L., Hill, M. N., Levine, D. M., & Curtis, C. (2011). Community Outreach and Cardiovascular Health (COACH) Trial A Randomized, Controlled Trial of Nurse Practitioner/Community Health Worker Cardiovascular Disease Risk Reduction in Urban Community Health Centers. *Circulation: Cardiovascular Quality and Outcomes*, 4(6), 595-602.

American Public Health Association, 2017. "Community Health Workers." Retrieved May 5, 2017 from <https://www.apha.org/apha-communities/member-sections/community-health-workers> . Rosenthal, E.L., Rush, C.H. & Allen, C.G. (2016).

American Public Health Association. (2015). C3 Project: The Journey Toward a United Consensus. Presented on November 2, 2015 at the APHA National Conference.

American Public Health Association. (2015). Community Health Workers. In: American Public Health Association. 2015. Retrieved on October 12, 2015, from: <http://www.apha.org/apha-communities/member-sections/community-healthworkers>.

American Public Health Association. (2020). Community Health Workers. Retrieved from American Public Health Association: <https://www.apha.org/apha-communities/membersections/community-health-workers> Rosenthal, E., Menking, P., & St. John, J. (2018). The Community Health Worker Core Consensus St. John, J. (2003). Informal CHW definition. Personal communication. Texas, United States. Texas

Anderson, L. (2013). Understanding the Different Scopes of Nursing Practice. Retrieved on December 16, 2015, from <http://www.nursetogether.com/understanding-differentscopes-nursing-practice>

Andrews, J. O., Felton, G., Wewers, M. E., & Heath, J. (2004). Use of community health workers in research with ethnic minority women. *Journal of Nursing Scholarship*, 36(4), 358-365. Retrieved on November 22, 2015, from http://www.researchgate.net/profile/Jeanette_Andrews/publication/8095725_U

se_of_community_health_workers_in_research_with_ethnic_minority_women/links/543415720cf2dc341daf336f.pdf.

APHA (2009). Roles, D. C. Support for Community Health Workers to Increase Health Access and to Reduce Health Inequities. Retrieved on October 23, 2015, from <http://www.fachc.org/pdf/APHA%20Pol%20Stmnt%202009-1.pdf>.

Arrossi, S., Thouyaret, L., Herrero, R., Campanera, A., Magdaleno, A., Cuberli, M., & EMA Study team. (2015). Effect of self-collection of HPV DNA offered by community health workers at home visits on uptake of screening for cervical cancer (the EMA study): a populationbased cluster-randomized trial. *The Lancet Global Health*, 3(2), e85-e94.

Ballard M, et al. Prioritizing the role of community health workers in the COVID-19 response. *BMJ Glob Health*. 2020.

Beckham, S., Kaahaaina, D., Voloch, K.A., Washburn, A. (2004). A community-based asthma management program: effects on resource utilization and quality of life. *Hawaii Medical Journal*, 63(4), 121-126.

Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari DK. Knowledge and perceptions of COVID-19 among health care workers: Cross-sectional study. *JMIR Public Health Surveill*. (2020) 6:e19160. doi: 10.2196/19160

Bhaumik S, et al. Community health workers for pandemic response: a rapid evidence synthesis. *BMJ Glob Health*. 2020.

Bhutta, Z. A., Lassi, Z. S., Pariyo, G., & Huicho, L. (2010). Global experience of community health workers for delivery of health related millennium development goals: a systematic

review, country case studies, and recommendations for integration into national health systems. Global Health Workforce Alliance, 1, 249-261. Retrieved on November 2, 2015, from http://www.who.int/workforcealliance/knowledge/publications/alliance/Global_CHW_web.pdf

Blue Cross and Blue Shield of Minnesota Foundation. (2010). Community health workers in Minnesota: Bridging barriers expanding access, improving health. Retrieved on

Brownstein, J. N., Chowdhury, F. M., Norris, S. L., Horsley, T., Jack, L., Zhang, X., & Satterfield, D.

Bureau of Labor Statistics (2010). Standard Occupational Classification. 21-1094 Community Health Workers, Retrieved from <http://www.bls.gov/soc/2010/soc211094.htm> .

Burton, A., Chang, D., & Gratale, D. (2013). Medicaid Funding of Community-Based Prevention: Myths, State Successes Overcoming Barriers and the Promise of Integrated Payment Models. Retrieved on November 3, 2015, from http://www.nemours.org/content/dam/nemours/wwwv2/filebox/about/Medicaid_Funding_of_Community-Based_Prevention_Final.pdf.

California Health Workforce Alliance. (2013). Taking Innovations to Scale: Community Health Workers, Promotores, and Triple Aim. Retrieved on August 23, 2015 from http://www.chhs.ca.gov/PRI/_Taking%20Innovation%20to%20Scale%20%20CHWs,%20Promotores%20and%20the%20Triple%20Aim%20-%20CHWA%20Report%2012

Centers for Disease Control and Prevention. Coronavirus Disease 2019 (COVID-19): Recommendation Regarding the use of Cloth Face Coverings, Especially in Areas of

Significant Community-Based Transmission. (2020) Available online at:
<https://www.cdc.gov/coronavirus/2019-ncov/preventgetting-sick/cloth-face-cover.html>
(accessed April 3, 2020).

Centers for Medicare & Medicaid Services. (2020, January 6). CMS' Value-Based Programs.
155 CMS.gov. <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-AssessmentInstruments/Value-Based-Programs/Value-Based-Programs>

Centers for Medicare and Medicaid Services. (2003). Cancer prevention and treatment demonstration for ethnic and racial minorities: Brandeis University. Retrieved November 21, 2015 from https://www.cms.gov/Medicare/Demonstration-Projects/DemoProjectsEvalRpts/downloads/cptd_brandeis_report.pdf

Centers for Medicare and Medicaid Services. (2015). State Innovations Models initiatives: General information. Retrieved on August 25, 2015, from

<https://innovation.cms.gov/initiatives/state-innovations/> Chanda, P., Hamainza B., Moonga, H.B., Chalwe, V., Pagnoni, F. (2011). Community case management of malaria using ACT and RDT in two districts in Zambia: achieving high adherence to test results using community health workers. *Malaria Journal*, 10, 158.

Chang, L. W., Kagaayi, J., Nakigozi, G., Ssempijja, V., Packer, A. H., Serwadda, D., & Reynolds, S. J. (2010). Effect of peer health workers on AIDS care in Rakai, Uganda: a clusterrandomized trial. *PloS one*, 5(6), e10923.

Community Resources LLC. (2013). Sustainable Financing of CHW Activities. Retrieved on October 23, 2016 from https://www.ghdonline.org/uploads/Sustainable_Financing_of_CHW_Activities_v4.pdf.

Consortium M. Supporting community health workers in Mozambique to respond to COVID-19. In: Adapting the upscale digital platform; 2020.

Cory N, Stevens P. Building a global framework for digital health services in the era of COVID-19. Information Technology and Innovation Foundation; 2020.

Crigler, L., Gergen, J., & Perry, H. (2013). Supervision of Community Health Workers. Retrieved on August 21, 2015,

Crigler, L., Hill, K., Furth, R., & Bjerregaard, D. (2011). Community Health Worker Assessment and Improvement Matrix (CHW AIM): a toolkit for improving CHW programs and services. Bethesda, MD: USAID.

Cummings, D. M., Lutes, L. D., Littlewood, K., DiNatale, E., Hambidge, B., & Schulman, K. (2013). EMPOWER: a randomized trial using community health workers to deliver a lifestyle intervention program in African American women with Type 2 diabetes: design, rationale, and baseline characteristics. *Contemporary Clinical Trials*, 36(1), 147-153.

Davis, A. (2013). Leveraging Community Health Workers within California's State Innovation Model: Background, Options and Considerations. California Health and Human Services Agency. Retrieved on August 23, 2013,

Diaz, J. (2012). Social return on investment: Community Health Workers in cancer outreach. Retrieved on January 15, 2016, Dower, C., Knox, M., Lindler, V., O'Neil, E. (2006).

Funding CHW Programs and Services in Minnesota: Looking to the Future. Retrieved on December 14, 2015

Funding_CHW_Programs_and_Services_in_Minnesota_Looking_to_the_Future.pdf.

Dower, C., Knox, M., Lindler, V., O'Neil, E. (2009). Advancing Community Health Worker Practice and Utilization: the Focus on Financing , 2009 National Fund for Medical Education. Retrieved on August 25, 2015.

Durano, A. (2013). The use of community health workers in increasing antiretroviral adherence in the developing world: Systematic Review (Doctoral dissertation, Texas Christian University Fort Worth, Texas). Retrieved on November 20, 2015.

Eyster, Lauren; Bovbjerg, Randall R. (2013). Promising Approaches to Integrating Community Health Workers into Health Systems: Four Case Studies. Urban Institute, December 2013. Retrieved on August 25, 2016.

Fedder, et al., 2003. (Fedder DO, Chang RJ, Curry S, et al. The effectiveness of a community health worker outreach program on healthcare utilization of west Baltimore City Medicaid patients with diabetes, with or without hypertension. *Ethnicity and Disease*. 2003;12(1):22–27. [PubMed])

Findley, S. E., Matos, S., Hicks, A. L., Campbell, A., Moore, A., & Diaz, D. (2012). Building a consensus on community health workers' scope of practice: Lessons from New York. *American journal of public health*, 102(10), 1981-1987. Retrieved on November 5, 2015, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3490670/pdf/AJPH.2011.300566.pdf>

Franco LM, Bennett S, Kanfer R. 2002. Health sector reform and public sector health worker motivation: a conceptual framework. *Social Science & Medicine*.

Gray DM, Joseph JJ, Olayiwola JN. Strategies for Digital Care of Vulnerable Patients in a COVID-19 World—Keeping in Touch. *JAMA Health Forum*. 2020;1: e200734.

Health Policy and Planning Debated. 2020. A Voice from the Front Line: What roles should urban community health workers be performing in the context of COVID-19?

<http://blogs.lshtm.ac.uk/hppdebated/2020/06/09/a-voice-from-the-front-line-what-roles-should-urban-community-health-workers-be-performing-in-the-context-of-covid-19/>.

Hui D.S.C., Zumla A. Severe acute respiratory syndrome: historical, epidemiologic, and clinical features. *Infect Dis Clin North Am*. 2019;33(4):869–889. [PubMed]

ICN (2020) More than 600 nurses die from Covid-19 worldwide, 3 June 2020, Geneva, International Council of Nurses. <https://www.icn.ch/news/more-600-nurses-dieCovid-19-worldwide>

Iribarren SJ, et al. Scoping review and evaluation of SMS/text messaging platforms for mHealth projects or clinical interventions. *Int J Med Inform*. 2017.

Jonas D. Outcomes of Community Health Worker Interventions. *Evidence Health*.2017.

Kaplan, J., Frias, L., and McFall-Johnsen, M. (2020). A Third of the Global Population is on Coronavirus Lockdown – Here’s our Constantly Updated List of Countries and Restrictions. Available online at: <https://www.businessinsider.com/countries-on-lockdown-coronavirus-italy-2020-3>

Kapoor A, Guha S, Kanti Das M, Goswami KC, Yadav R. Digital healthcare: The only solution for better healthcare during COVID-19 pandemic? *Indian Heart J.* 2020.

Koh D. and Goh H.P. (2020) Occupational health responses to Covid-19: what lessons can we learn from SARS?, *Journal of Occupational Health*

National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases.

Moetlo, G. J., Pengpid, S., & Peltzer, K. (2011). An evaluation of the implementation of integrated community home-based care services in vhembe district, South Africa. *Indian Journal of Palliative Care*, 17(2), 137. Retrieved on August 23, 2013, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3183603/>

Pettersson, H., Manley, B., and Hernandez, S. (2020). Tracking Coronavirus' Global Spread. <https://www.cnn.com/interactive/2020/health/coronavirus-maps-andcases> [accessed May 29, 2020]. Feroz A, Jabeen R, Saleem S. Using mobile phones to improve community health workers performance in low-and-middle-income countries. *BMC Public Health*. 2020;20(1):1–6.

Retrieved from <http://annals.org/article.aspx?articleid=1722498>

Stamm, B. H. (2010). The ProQOL (Professional Quality of Life Scale: Compassion Satisfaction and Compassion Fatigue). Pocatello, ID: ProQOL.org. retrieved [date] www.proqol.org. Health and Human Services. (2019, December 6)

TriHealth International. 2020. Digital health 2.0: getting tools and services to people who need them Most. Retrieved from <https://www.frontlinehealthworkers.org/blog/digital-health-20-getting-tools-and-services-people-who-need-them-most>.

Understanding Scope and Competencies: A Contemporary Look at the United States Community Health Worker Field. Progress Report of the CHW Core Consensus (C3) Project: Building National Consensus on CHW Core Roles, Skills and Qualities. Retrieved June 28, 2017 from <https://sph.uth.edu/dotAsset/28044e61-fb10-41a2-bf3b07efa4fe56ae.pdf>

Viswanathan M, Kraschnewski J, Nishikawa B, Morgan LC, Thieda P, Honeycutt A, Lohr KN, Waters R. Community workers lend human connection to COVID-19 response: article examines the role of community health workers in responding to the COVID-19 pandemic; 2020.

Waters R. Community workers lend human connection to COVID-19 response: article examines the role of community health workers in responding to the COVID-19 pandemic; 2020.

WHO Novel Coronavirus–China. 2020. <https://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/>. Accessed 1 Feb 2020.

Winters N, O'Donovan J, Geniets A. A new era for community health in countries of low and middle income? *Lancet Glob Health*. 2018.

World Health Organization. Advice on the Use of Masks in the Community, During Home Care and in Healthcare Settings in the Context of the Novel Coronavirus (2019-nCoV) Outbreak: Interim Guidance, 29 January 2020. (2020) Available online at: <https://apps.who.int/iris/handle/10665/330987> (accessed March 13, 2020)

World Health Organization. Infection Prevention and Control During Health Care When Novel Coronavirus (nCoV) Infection Is Suspected. Available online at: <https://www.who.int/publications/i/item/10665-331495> (accessed April 17, 2020). 43.

Appendix A

Survey Methodology for Replication

Purpose: Created by the original survey to provide origin context and information to support replication and/or adaptation of survey instrument

- i. Target population: Certified and non-certified CHWs working in the three different Member states during the COVID-19 pandemic
- ii. Data collection: May –June 2021
- ii. Implementation: Survey link distributed via email by collaborating state and local level CHW organizations and associations
 1. Distribution email was written in English
 - a. Email template for distributing the survey was provided to organization and association contacts for convenience
 - b. Survey team reached out to collaborating organizations and associations prior to survey implementation to request their assistance and begin planning for survey distribution
 - III. Survey objectives
 - i. Describe survey respondent demographics & professional setting
 - ii. Describe changes experienced by CHW workforce during COVID-19 pandemic
 - iii. Describe how CHWs are addressing COVID-19 pandemic
 - iv. Describe quality of life impact of CHW employment during COVID-19 pandemic

- v. Describe professional support experienced by CHWS from their employers & CHW coordinators
- vi. Describe CHW perceptions of community assets & challenges during COVID-19 pandemic

Survey details:

- i. 35-item survey created & distributed in Qualtrics
- ii. ~20 minutes to complete
- iii. Qualitative & quantitative data
- iv. Each question is aligned with an objective, an intended construct, & a source
- v. Survey mechanics
 - 1. Respondent has option to view survey entirely in English
 - a. English via Google CHWs, healthcare professionals, & survey team members

Recommendations for survey instrument replication

- i. 48- hour time limit initiated after survey opened – respondent’s data automatically recorded and respondent is unable to re-open survey
 - 1. Include statement about time limit in instructions
 - ii. Restrict answer format to desired format (e.g., text-only answer for questions seeking answers in text format
- 1. Use a drop-down menu for questions seeking answer in numerical format (e.g., age) instead of open text format
 - iii. Adjust display logic of screening questions to your target population (e.g allow respondent to progress with survey if they work in the state where you are collecting data)
 - iv. Forced answer function for screening questions only to increase likelihood of survey completion, but be aware that this will result in a different sample size for each question in Qualtrics)
 - v. Duplicate survey in Qualtrics prior distribution to separate pilot/beta survey responses from actual data collection survey responses

- vi. Separate large content questions onto separate pages in Qualtrics (lots of respondents quit survey on large content pages, may have been overwhelming)

Appendix B Consent Form

Greetings,

I am Tambe Helen Otang, Studying Masters of Social work in St. Mary's University. I am researching on entitle "EssRoles and Competences Change by Community Health Workers during Covid-19 Pandemic. Case study; The Africa Centres for Disease Control and Prevention (Africa CDC) African Union Commission." Community health workers (CHWs) are essential to public health during the pandemic response. I am going to give you the information and invite you to be part of this research. Before you decide, you can talk to anyone you feel comfortable with about the research. Your participation in this research is entirely voluntary. It is your choice whether to participate or not.

We believe that you can help us by telling us what you know both about your roles, challenges of CHWs during the Covid 19 pandemic.

This research will involve your participation in a questioner that will take about 20-40 minutes. There will be no direct benefit to you, but your participation is likely to help us find out more about how to improve on the roles and impact of CHWs during COVID 19.

The information that we collect from this research project will be kept private. We assure you that all information that you give will be kept strictly confidential. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except name who will have access to the information, such as researcher, advisor, and examiner, etc.

We are asking you to help us learn more about COVID 19 and CHWS skills and qualities in the pandemic. We are inviting you to take part in this research project. If you accept, you will be asked to.

I __ have read the foregoing information, or it has been read to me. I consent voluntarily to be a participant in this study.

Print Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year

If illiterate

Print name of witness _____

Thumb print of participant

Signature of witness _____ Date _____

Appendix C

Questionnaire

Questionnaire Essentials Roles and Challenges faced by Community Health Workers during Covid-19 Pandemic

Dear respondent,

This questionnaire is designed to gather information regarding ‘**Core Roles and Competences Change by Community Health Workers during Covid-19 Pandemic. Case study; The Africa Centres for Disease Control and Prevention (Africa CDC) African Union Commission**’. The information you provide will only be used for research purposes. Therefore, you are kindly requested to provide accurate information as much as possible. I confirm you that all data will be treated confidentially and only aggregated and average information will be published.

Do you want to participant in this survey? Yes No

Organization Name: The Africa Centres for Disease Control and Prevention (Africa CDC) African Union Commission’

I. Demographic Questions

Please indicate your response by circling the number corresponding to your choice or write the answer briefly on the space provided.

1. Marital Status: A) Single B) Married
2. Age: A) 19-25 B) 26-35 C) 36-45 D) 46-55 E) 56-65 F) Above 65 years

3. Time working as a community health worker: A) 1-5 years B) 5-10 years C) 11 years above

4. CHWs who received incentives. A) Monthly stipend B) Allowances (transport, lunch, airtime) C) non-financial (food, backpacks) D) None

Job reception as a CHWs ,

- A) Case Work Aide
- B) Community Health Worker
- C) Community Care Coordinator
- D) Community Health Advisor and educator
- E) Community Health Promoter
- F) Community Outreach Worker

5. CHW Time to reach farthest household. A) Below 30 minutes B) Between 30 - 60 minutes C) Between 61 - 120 minutes D) Above 120 minutes

Impact of COVID-19 on CHW Roles and Skill

7. CHW Roles performance frequency Before Covid 19:

- A) Providing culturally appropriate health education.; i. Never ii. Some iii. Often
- B) Advocating for individuals and communities; i. Never ii. Some iii. Often
- C) Care coordination, case management, & system navigation; i. Never ii. Some iii. Often
- D) Providing coaching & social support: i. Never ii. Some iii. Often
- E) Conducting outreach; i. Never ii. Some iii. Often
- F) Cultural mediation among individuals, communities, health and social service. i. Never ii. Some iii. Often
- G) Care coordination, case management, & system navigation; i. Never ii. Some iii. Often
- H) Providing direct Services; i. Never ii. Some iii. Often
- I) Implementing individual & community assessment; i. Never ii. Some iii. Often
- J) Participating in evaluation & research. ; i. Never ii. Some iii. Often

8. CHW Roles performance frequency Since COVID 19 pandemic

- A) Providing culturally appropriate health education. i. No change ii. A LOT less iii. Less iv. More v. A LOT more
- B) Advocating for individuals and communities i. No change ii. A LOT less iii. Less iv. More v. A LOT more
- C) Care coordination, case management, & system navigation i. No change ii. A LOT less iii. Less iv. More v. A LOT more
- D) Providing coaching & social support i. No change ii. A LOT less iii. Less iv. More v. A LOT more
- E) Conducting outreach i. No change ii. A LOT less iii. Less iv. More v. A LOT more

9. CHW Skills performed Before COVID 19 Pandemic.

- A) Communication skills
- B) Interpersonal relation-building skills
- C) Service coordination and navigation skills
- F) Education & facilitation skill
- G) Outreach skills
- H) Professional skills & conduct

- D) Capacity building skills
 - E) Advocacy skills
 - I) Evaluation & research skills
 - J) Knowledge base
 - I) Implementation individual& community assessment
10. CHW Skills performed since COVID 19 Pandemic.
- A) Communication skills
 - B) Interpersonal relation-building skills
 - C) Service coordination and navigation skills
 - D) Capacity building skills
 - E) Advocacy skills
 - F) Education& facilitation skill
 - G) Outreach skills
 - H) Professional skills & conduct
 - I) Evaluation & research skills
 - J) Knowledge base
 - I) Implementation individual& community assesment

11. CHW Responsibilities' Before and During COVID 19 Pandemic.

- A) Counseling and direct primary health service
- B) Home-based visits for infectious disease prevention and management
- C) Nutrition supplementation
- D) Home-based visits for family planning
- E) Home-based services for pregnant women
- F) Immunizations for children Make referrals to a health facility
- G) Discuss safe drinking water and/or handwashing

12. CHW qualities, Pre and Since COVID 19 Began.

i. Personality traits (qualities): Before COVID:

- A) Connected to the community serve
- B) Honest
- C) Empathetic
- D) Dependable
- E) Resourceful
- F) Eager to learn
- G) Self-directed
- H) Open-minded
- I) Outgoing
- G) Courageous

ii. Personality traits (qualities): Since COVID 19 pandemic:

- A) Connected to the community serve
- B) Honest
- C) Empathetic
- D) Dependable
- E) Resourceful
- F) Eager to learn
- G) Self-directed
- H) Open-minded
- I) Outgoing
- G) Courageous

13. CHW Training/ Guidance on COVID 19 pandemic:

- A) Preventive strategies (hand washing practices, social distance, self-quarantine, etc.)
- B) General information about COVID-19
- C) Correct use of PPE (masks, gloves, apron, etc.)
- D) Signs and symptoms of COVID-19
- E) Contact tracing and community surveillance
- I) Home based care of COVID-19 cases
- J) Continuity of community-based services

14. CHWs Activities on COVID 19:

- A) Educating community members about COVID-19 prevention or treatment
- B) Educating communities/households about how to take care of someone with COVID-19 in the home
- C) Referring suspected COVID-19 cases for testing
- D) Reporting suspected or confirmed cases of COVID-19

E) Doing contact tracing for those who may have COVID-19 in the community you serve

F) Referring suspected COVID-19 cases for advanced care at facilities

15. Factors that promote the effectiveness of the CHWs in the community in response to the pandemic

A) Community health work is easier for a local person than for someone who comes from the outside because people know and trust them.

i. Yes

ii. No

iii. Unsure

B) The CHW speaks in the same terms of the community, knows the customs and issues.

i. Yes

ii. No

iii. Unsure

C) On many occasions CHWs have the same social and cultural background

i. Yes

ii. No

iii. Unsure

D) They dress and behave the same and speak the same local language

i. Yes

ii. No

iii. Unsure

E) They know the myths and beliefs of the community

i. Yes

ii. No

iii. Unsure

16. CHWs Giving Specific Advice on Prevention and Treatment.

A) Call-a call in center if symptomatic or exposed. B) Get tested if symptomatic

C) Self-isolate if symptomatic D) Quarantine if you think you're exposed

E) Stay home F) Social distancing (1-2 meter) G) Frequent hand washing/hand sanitizer H) Wearing mask.

17. CHWs who Experienced Hospitality or Mistreatment:

A) being refused entrance into a client's home B) being yelled at or spoken to rudely in the community

C) having their advice ignored by clients.

18. CHW Challenges During COVID 19 Response:

A) Cannot travel because of social distancing regulations

B) Do not have adequate PPE to feel safe

C) People fear CHW might spread COVID-19

D) CHW fears she may get COVID-19

E) Had shortage of contraceptives

F) Had shortage of drugs

G) Had shortage of other commodities

H) Public transportation unavailable

19. CHWs Receiving PPE:

A) Disposable masks B) Hand sanitizer C) Reusable masks D) Glove E) Soap F) Cleaning/disinfecting supplies

20. Personal Impact of COVID 19 on CHWs:

A) day-to-day life in their community.

B) Your job security

C) Your personal financial situation

D) Your state population as a whole

E) Your personal health

21. Increased Risk of Severe Illness to COVID 19

A) Are you considered to have increased risk for severe illness related to covid 19.

B) Is anyone in your household considered to have increased risk for severe illness related to COVID 19?

C) Is the population that you currently work with considered to have increased risk for severe illness related to COVID 10?

22. Proximity to a Person who Tested Positive for COVID 19.

a) Have you been in close proximity to anyone who has tested positive for COVID 19 through your work as a CHW? A) Yes B) No C) Unsure

23. Work Status for the Previous Six Months:

A) Fired or laid off B) Hired not because of COVID C) Hired because of COVID

D) No change D) Chose to stop working E) Furloughed

24. CHW Work Setting Pre and Since COVID 19 Pandemic:

A) Out in the community B) Community Centers C) Client's home D) Schools E) Clinic/outpatient facility F) Office setting G) Religious Centers

H) Health Department I) Early childhood education J) Hospital
K) Long term care facility L) Shelters M) work sites N) Working remotely(home)

25. Types of CHWs Employer/ Organization Pre and Since Covid 19 pandemic:

A) Community-based B) Clinical C) Governmental D) Private organization
E) University F) Education program G) Indian/Tribal Health

26. Average Paid and Unpaid Hours Worked as a CHW Before and Since COVID 19:

A) Paid hours worked as CHW/ week

B) Unpaid hours worked as CHW/week

C) Paid hours work related to COVID-19

D) Unpaid hours work related to COVID-19

27. Integration and Connection with Workforce:

'I feel integrated with my work'

A) Very Often B) Often C) Sometimes D) Rarely E) Never

28. Level of Professional Burnout

A) High B) Moderate C) Low

29. Effect of state of COVID 19 on Job Execution:

Have COVID-19 restriction at the states or local level change the way you perform your job?

i. Yes B) No

31.) Employer Support during the Pandemic.

A) Has helped me to feel well-prepared to my job:

i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree

B) Has communicated a clear plan of action related to COVID 19.

i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree

C) Keep me updated and informed on a regular basis

i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree

D) Has provided sufficient personal protective equipment to do my job

- i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree
- E) Cares about my overall wellbeing.
- i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree
- F) Has supported me since the COVID-19 pandemic response on my community.
- i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree

32. Community wellbeing Before and Since COVID 19:

- A) CHW who rate community as well
 B) CHW who rate community as unwell
 C) Change

33. Community Concerns on COVID 19; Since the pandemic began, what are the most concerning issues faced by the community members that you have serve.

- A) Bailout funds for business or sector
 B) Paid sick leave for a period of self- isolation
 C) Tax relief for business
 D) Employment protection for those self-isolating
 E) Provision of free health care.

34. How likely would you be to take a free self-placed online training related to Covid 19, created by CHWs

- A) Likely B) Unlikely C) Very Unlikely D) Very likely E) Neither likely nor unlikely

35. Population Served Before & Since COVID-19

- A) Adolescents B) Infants/children C) Pregnant women /new parents
- D) Recent immigrants E) Women F) Individuals with disabilities
- G) Families H) Refugees I) LBGQTQ+ J) Older adults
- K) individuals exp homelessness L) Veterans M) Men

36. Access to Health Care, Resources, and Health Issues. I)Communities access to Health Care responses

- A) Getting medication on time B) Clinics stay open late C) Appointments, Dental not open D) Better equip for covid E) Better equip for covid F) language barriers
- ii)Access to resources responses. A) Food B) food insecurity C) transportation D) housing E) income F) Lack of community resources

ii) Health Issues responses A) Health B) Wellness C) Chronic health issues D) Accident

37. Key community health worker roles in the COVID-19 vaccines rollout

- Planning and coordination i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree

- Identification of target population coordination i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree

- Vaccine acceptance and uptake coordination i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree

- Community mobilization for service delivery coordination i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. strongly agree

Vaccine rollout tracking and follow-up coordination i. Strongly disagree
ii. Disagree iii. Neutral iv. Agree v. strongly agree

THE CRITICAL ROLE OF COMMUNITY HEALTH WORKERS IN COVID-19 VACCINE ROLL OUT



Africa CDC community health workers in Zimbabwe.