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Relationship between task shifting and service delivery in informal settlements: a case of community health volunteers in Kibra.

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RELATIONSHIP BETWEEN TASK SHIFTING AND SERVICE DELIVERY IN INFORMAL SETTLEMENTS: A CASE OF COMMUNITY HEALTH VOLUNTEERS IN KIBRA

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DECLARATION

I declare that this work has not been previously submitted and/or approved for the award of a degree by this or any other university. To the best of my knowledge, this thesis contains no material previously published or written by another person except where due reference is made in the proposal itself.

Sign ……k.k…… **Date 22th/May/2023……...**

Karen Kiranka

Approvals

This proposal has been reviewed and approved by: -

Sign ……. Date …22th May 2023

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DEDICATION

I would like to dedicate this to my family and friends who have been there to support me financially socially and spiritually.

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I wish to express my gratitude to my supervisor Prof. Joseph Onyango for his professional guidance patience and constant motivation. I would also like to thank my family and classmates who have provided both emotional and academic guidance in this study. Above all, I thank God for giving me the gift of life especially during this COVID-19 season to write this work.

ABSTRACT

Human Resource for Health is an essential pillar in provision of quality and responsive health care services for the population. However due to the shortage of health care workers in sub-Sahara Africa and worse in Kenya, the WHO has recommended the need for other strategies like task shifting as a way of managing these challenges. This study therefore sought to evaluate the strategy of task shifting and its implications on service delivery of non-Communicable diseases by the community health volunteers in the informal sector of Kibera in Nairobi County. The objectives of the study were to establish service delivery of community health volunteers on noncommunicable diseases, assess the effect of community health volunteers' skills on service delivery, evaluate the effect of training of community health volunteers on service delivery and determine the effect of motivation of community health volunteers on service delivery. The ability, motivation and opportunity theory and expectation theory were used to guide this study. The current study adopted a positivist approach. A descriptive cross-sectional design was used. The study targeted community health volunteers in Kibra. Slovin's formula was used to calculate the sample size of 144 respondents. A semi-structured questionnaire was used to collect data from the respondents. Descriptive and regression analysis were used to analyse data using SPSS. Results were presented in form of tables and graphs. This study's findings exhibit that skill, motivation, training attributes, gender, age, and education level explained 58.2% of the total variation in service delivery ($R^2 = .582, F(17, 108) = 8.85, p < .001$). This model had the greatest R square (R^2) showing that skill has a significant positive effect on service delivery ($\beta = .413, p < .01$). On average, every unit increase in skill rating is associated with a .413 unit increase in service delivery rating, all else fixed. The study recommended that skilling of CHVs with regard to NCDs be given more weight as the other soft skills are, harmonize training calendar and creatively always find more sustainable ways of incentivizing the CHVs.

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ABBREVIATIONS AND ACRONYMS

CHA - Community Health Assistant

CHEW -Community Health Extension Worker

CHMT -County Health Management Team

CHO -Community Health Officer

CHS -Community Health Strategy

CHU -Community Health Unit

CHV -Community Health Volunteer

COVID-19 -Corona Virus Disease 2019

HRH - Human Resources for Health

NCDs -Non-Communicable Diseases

WHO -World Health Organization

DEFINITION OF TERMS

Community Health Volunteer: they are lay health workers who have received basic training on noncommunicable diseases and can screen, aware of the risk factors and refer patients for further management in the clinics.

Community Strategy: this is a strategy where members of the community are encouraged to participate in issues relating to their health.

Non-Communicable Diseases: Non-Communicable diseases (NCDs), of interest in the study are hypertension and diabetes.

Service delivery: means access to quality, timely and safe health care services provided by a qualified health worker.

Task shifting: This is a strategy where lay health care workers who do not have a background in medical training are given short training on how to support in management of different health conditions under supervision of a trained health care provider.

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background of the Study

The term noncommunicable diseases (NCDs) refers to a group of conditions that are not mainly caused by an acute infection, result in long-term health consequences and often create a need for long-term treatment and care. NCDs also known as chronic diseases, tend to be of longer duration and are the result of a combination of genetic, physiological, environmental and behavioural factors. Many other important conditions are also considered NCDs, including injuries and mental health disorders. These conditions are often associated with older age groups, but evidence shows that more than 15 million of all deaths attributed to NCDs occur between the ages of 30 and 69 years (WHO, 2021).

NCDs are the leading cause of mortality worldwide and a serious public health threat to developing countries. NCDs kill 41 million people each year worldwide, equivalent to 71% of all deaths globally. In the Region of the Americas, 5.5 million deaths are by NCDs. NCDs disproportionately affect people in low- and middle-income countries where more than three quarters of global NCD deaths – 31.4 million – occur. Although the burden of disease in sub-Saharan Africa continues to be dominated by infectious diseases, countries in this region are undergoing a demographic transition leading to increasing prevalence of non-communicable diseases (Gouda et al., 2019). According to Bigna and Noubiap (2019), NCDs are set to overtake communicable, maternal, neonatal, and nutritional (CMNN) diseases combined as the leading cause of mortality in sub-Saharan Africa by 2030.

In Kenya, the health system is struggling with a double burden of disease – the high burden of infectious diseases and the increasing burden of NCDs (Ministry of Health, 2021). NCDs such as cancers, diabetes and others account for 27 per cent of the total deaths and over 50 per cent of total hospital admissions in Kenya. The STEPS survey (2015) showed that NCDs accounted for over 55 percent of hospital deaths in Kenya while more than 50

percent of all the hospital admissions were due to NCDs. Poor sanitation in Kibera slums, the largest in Africa, has always contributed to the spread of diseases and here where most outbreaks of cholera, dysentery, diarrheal and typhoid have been sprung. However, studies by Edwards et al. (2015) and Some et al. (2016) have also shown a rise in NCDs in the slums.

Far from being diseases exclusively of the wealthy, NCDs are already, and will continue to be, a significant burden on the world's poor. WHO (2022) indicated that the epidemic of NCDs poses devastating health consequences for individuals, families and communities, and threatens to overwhelm health systems. The socioeconomic costs associated with NCDs make the prevention and control of these diseases a major development imperative for the 21st century. According to Kluge et al. (2020), NCDs also have an adverse impact on the economy, at national and global levels. This is due to the combined burden of healthcare costs and productivity losses resulting from deaths in working age and disease-related disability that curtails the ability to engage in fully productive work.

The rise in NCDs has warranted new approaches for prevention, diagnosis, treatment and cure of such afflictions. The main focus is on the elements of self-management and to reach a consensus about the influence of food on risk management and actions toward the prevention of NCDs at all stages of life (Budreviciute et al., 2020). The 2030 Agenda for Sustainable Development recognizes NCDs as a major challenge for sustainable development. As part of the agenda, Heads of State and Government committed to develop ambitious national responses, by 2030, to reduce by one-third premature mortality from NCDs through prevention and treatment (SDG target 3.4) (WHO, 2020). In Kenya, a five-year strategic plan was launched in 2021 to tackle NCDs. According to MoH (2021), the plan sets out to strengthen the national health system's capacity to manage non-communicable diseases and promote a healthy lifestyle.

1.1.1 Task Shifting

Task shifting is the redistribution of tasks among workforce teams and extending scopes of practice where lay health care workers, who do not have a background in medical training, are given short training on how to support in management of different health conditions under supervision of a trained health care provider (WHO, 2008). Task shifting is often seen as a process of transferring responsibility for 'simple' tasks from highly-skilled but scarce health workers to individuals with less expertise and, correspondingly, less pay (van Schalkwyk et al., 2020). According to WHO (2006), task shifting is defined as "a process of delegation whereby tasks are moved, where appropriate, to less-specialized health workers". It has become an increasingly popular way to increase access to health services, especially in low-resource settings (Seidman & Atun, 2017).

Health workforce needs-based shortages and skill mix imbalances are significant health workforce challenges (van Schalkwyk et al., 2020). Task shifting is a potential strategy to address these challenges. According to WHO (2013), there is need to match today's supply of health professionals with the demands of tomorrows population. Shifting tasks between health care workers and expanding the clinical team can be used as a strategic approach to relieve short-term human resource limitations in settings with low resources. The pool of skilled workers is unevenly distributed, with high concentrations in urban areas and many working in the private sector rather than in public health care (WHO, 2010). In the urban informal sector trained health care providers are few due to lack of infrastructure and poor access, to support health in such settings the community health volunteers can be used to provide care at the primary level under supervision of the trained health workers .There is evidence that demonstrates the positive impact of task shifting of HIV care in these settings (Zachariah et al., 2009).

Ethiopia being a country in Africa facing the same challenges of human resource shortage, has used this strategy to prove that task shifting can indeed make a vital contribution to building sustainable, cost-effective, and equitable health care systems (Lehmann et al.,

2009b). Task shifting strategies require leadership from national governments to ensure an enabling regulatory framework; drive the implementation of relevant policies; guide and support training institutions and ensure adequate resources; and harness the support of the multiple stakeholders (Lehmann et al., 2009a). In Zimbabwe task shifting strategy has been used in management of mental disorders and has been shown to be associated with a meaningful reduction in symptoms of depression and common mental disorders (Chibanda et al., 2011)

Much of current discussion of task shifting focuses on community health workers who are seen as relieving doctors, clinical officers, and especially nurses of some of the health promotion and direct care and support work that professional cadres are frequently unable to deliver because of personnel shortages and distance from communities they service (Muia et al., 2019). There is evidence of use of task shifting in HIV management, (Callaghan et al., 2010), immunization and in malaria prevention, (Muia et al., 2019). In a study done in Kibera the study demonstrated that nurses working within a resource-constrained, primary care and HIV setting, can successfully follow protocols managing stable patients with multiple NCDs (Some, Edwards, Reid, Bergh, et al., 2016). In another study done in the lower eastern parts of Kenya, which is considered a low resource setting, the task shifting model in public health facilities done by non-medical providers was found to be feasible and according to the study, it should be utilized to maximize on delivery of health services particularly in resource constrained settings (Ikahu et al., 2016).

CHWs, who often are from low socio-economic backgrounds, have been defined as "any health worker carrying out functions related to health care delivery; trained in some way in the context of the intervention, and having no formal professional or paraprofessional certificate or degree in tertiary education" (Lewin et al., 2010). Community Health Assistants/Officers (CHAs/CHOs) and Community Health Volunteers (CHVs) form a key constituent of human resources for community health. Community health workers perform a wide range of activities in the community which include preventive health care such as issues on nutrition and environmental sanitation. They also do health promotion through

education to achieve behavior change and first aid for basic ailments before making referrals to trained health care providers. These cadre acts as a linkage between the community households and the health facilities around (Oliver et al., 2015). In 1989, The World Health Organization proposed that Community Health Workers should be members of the communities where they work, should be selected by communities, should be answerable to the communities for their activities, should be supported by health system but not necessarily a part of its organization, and have shorter training than professional workers.

A study done in Kenya on the effectiveness of community health workers in maternal health, the volunteers from the community were found to effectively share health messages that increase knowledge of maternal and newborn care and encourage deliveries under skilled attendance with increases of 2–21% in three separate regions in Kenya (Adam et al., 2014). During the COVID-19 pandemic in Kenya the community health workers from the relevant communities have been used in disease surveillance and case tracing for those found to be COVID-19 positive.

At any given point in time, multiple factors are influencing the adoption of task shifting and may be related to the health care worker, human factors, and organisational factors (European Union, 2019). Feiring and Lie (2018) identified ten factors that they believed may influence task shifting implementation in in highly specialised healthcare. The factors included knowledge of and acceptability of task shifting rationale, dynamic role boundaries, technical skills to perform biopsies and aspirations, beliefs about consequences such as efficiency, quality and patient satisfaction as well as beliefs about capabilities such as technical, communicative and emotional skills. It also includes job satisfaction and esteem, organisational culture such as team optimism, emotions such as fear of informal nurse hierarchy and envy and project planning and competent leadership. It also includes structured training, time to practice and voluntariness and patient preferences. According to Okyere, Mwanri and Ward (2017) the provision of adequate training and supervision for

health workers is important in order to improve their expertise before additional tasks are assigned to them so that the quality of care would not be compromised.

1.1.2 Service Delivery

Service delivery is the process of providing a service to customers or the internal clients of an organization (Tax, McCutcheon & Wilkinson, 2013). It typically includes processes to design, develop, deploy and operate services. Service delivery processes typically aim to provide the client with increased value by setting standards, policies, principles and constraints to guide all aspects of their business and customer interactions. Service delivery is important because it helps provide people with amenities they want or need by linking them to an organization with the resources to provide those services (Hasan et al., 2019.

A service delivery system is what service providers use to deliver services. This system usually consists of four key elements: service culture, employee engagement, service quality, and customer experience (Verma & Jayasimha, 2014). These four components are involved in the process of providing services. Service culture relates to the leadership principles, vision, mission, work habits and values of a service provider company. Employee engagement focuses on those who work within an organization to provide service delivery. Service quality includes all strategies, performance management systems and processes involved in service delivery. Customer service focuses on providing the client with both the resources and knowledge they desire about their service delivery product (Yoon & Lee, 2010).

Service delivery is the part of a health system where patients receive the treatment and supplies they are entitled to. Pina et al. (2015) defined a health care delivery system as the organization of people, institutions, and resources to deliver health care services to meet the health needs of a target population, whether a single-provider practice or a large health care system. According to the World Health Organization, health service delivery is considered good when equitable access to a comprehensive range of high-quality health services is ensured within an integrated and person-centered continuum of care. Service

delivery monitoring has immediate relevance for the management of health services, which distinguishes this area from other health systems building blocks (Mdege, Chindove & Ali, 2013).

Measuring service delivery depends entirely on the context and brand promise, and service quality dimensions vary according to the industry (Tummers et al., 2015). Service quality has been a concern for public and private healthcare institutions worldwide. Integrated healthcare delivery is a policy goal of healthcare systems. As competition intensifies within the healthcare industry, patient satisfaction and service quality are providing the evidentiary basis for patient outcomes (Endeshaw, 2021). Perceived service quality as explained by Zeithaml is based on the decisions formed by customers of the expected services of the healthcare provider. The actual service delivered by providers confirms the perception of its patients and this could be positive confirmation or disconfirmation (Wu et al., 2021). In this study, service delivery will be measured by Prevalence of NCDs, residents knowledge, residents attitudes, lifestyle changes and residents health seeking behaviour.

Proper management of human resources is critical in providing a high quality of health care. Globally, there is an acute shortage of human resources for health (HRH), and the greatest burden is borne by low-income countries especially in sub-Saharan Africa and some parts of Asia (WH0, 2016). Reasons for the rapidly deteriorating state of qualified staffing in health services include lack of training capacity and poor remuneration, discouraging many who would otherwise have entered the profession and forcing many others to relocate to countries where they are paid more for their services – perpetuating the ‘in and out country brain drain’ phenomenon (Miseda et al., 2017). Task-shifting has been recommended as an approach to reduce the impact of human resource shortages. This refers to refers to a process of delegation whereby relatively less skilled staff are assigned to perform tasks otherwise handled by highly skilled/ specialized professionals (Tumaini et al., 2016). Evidence suggests that CHWs, who typically cost less to train and employ

than other cadres, are capable of providing high-quality basic health care services (Keller et al., 2017).

Task shifting has several challenges that can affect the success of its implementation. One of the most significant challenges is the limited skills and training of lower-level health workers, including Community Health Volunteers (CHVs), who perform additional duties. Inadequate training and supervision can also lead to poor quality of care. Another challenge is the lack of motivation, as lower-level health workers may feel undervalued and receive lower pay than higher-level healthcare workers. Resistance to change can also be challenging, as some healthcare workers may not be receptive to task shifting. In some countries, there may also be legal and regulatory barriers to task shifting, making it challenging to implement task-shifting programs. To address these challenges, it is crucial to provide adequate training, support, motivation, incentives, which is the focus of this study.

1.1.3 The Informal Sector in Nairobi County

Informal settlements are areas where groups of housing units have been constructed on land that the occupants have no legal claim to or occupy illegally. They are unplanned settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing). Slums are urban areas characterized by poverty and substandard living conditions, and informal settlements are areas developed outside of planning regulations and legally sanctioned housing and land markets (Zerbo, Delgado & González, 2020).

As the world rapidly urbanizes, millions of people are flooding into informal, unplanned settlements, often located at the urban periphery without access to services like water and sanitation. An estimated 25% of the world's urban population live in informal settlements, with 213 million informal settlement residents added to the global population since 1990 (UN-Habitat, 2013). Sub-Saharan Africa (SSA) has the highest proportion of urban population living in informal settlements, 56% in 2015 according to the United Nations

Human Settlements Programme (UN-Habitat). In Kenya, 54.7% of the total population live in informal settlements. According to the estimates of the World Bank, roughly 60% of Kenya's urban families live in areas that would be defined as slums. In Kenya's capital city, Nairobi, it is estimated that over 70% of the population live in informal settlements.

Living in informal settlements disproportionately affects certain groups. Countries experiencing informal settlement growth are grappling with the same set of systemic problems related to lack of access to affordable housing, inappropriate spatial planning policies and an incomplete system of land management as well as growing urban poverty, though in very different national contexts. Though informal settlements offer at least some degree of promise to their residents, they also lack basic infrastructure to support health and wellness, including clean water, adequate sewage systems, durable housing, and public spaces for commerce and recreation.

Informal settlers in Sub-Saharan Africa face everyday health risks arising from lack of clean water, adequate sanitation, and life in overcrowding houses. Consequently, there is a burden of communicable and non-communicable diseases, undernourishment and injuries (Zerbo et al., 2020). While poor living conditions in informal settlements are associated with a number of negative impacts on health, including increased burdens of non-communicable disease injuries, and infectious diseases such as HIV and tuberculosis, the health and development of infants and children in informal settlements has been identified as a key concern (Lee et al., 2016). The study seeks to evaluate task shifting and its implication on service delivery of non-Communicable diseases by community volunteers in the informal sector in Nairobi County.

1.2 Problem Statement

Noncommunicable diseases (NCDs) kill 41 million people each year, equivalent to 71% of all deaths globally. Each year, more than 15 million people die from an NCD between the ages of 30 and 69 years; 85% of these "premature" deaths occur in low- and middle-income countries (WHO, 2021). It is estimated that non-communicable diseases account for 27%

of all deaths suffered by Kenyans, equivalent to almost 100,000 people per year (WHO, 2016). Over 50% of all hospital admissions are as a result of NCDs. Kibera, the largest informal settlement in country suffers from a higher prevalence of non-communicable diseases. For instance, the prevalence of Diabetes Mellitus is 5.3%, higher than the national average of 4.2% (Ayah et al., 2013).

Several studies have been carried out on service delivery of noncommunicable diseases. Nakatani (2016) studied global strategies for preventing and controlling infectious and non-communicable diseases. A systematic review by Oni and Unwin (2015) synthesized evidence on the overlap and interactions between established communicable and emerging NCD epidemics in LMIC. A similar study by Kovacs et al. (2018) aimed to evaluate the effect of intervention methods on the guideline adherence of primary care providers. Juma et al. (2018) study aimed to generate evidence on the extent of MSA application in NCD prevention policy development in five sub-Saharan African countries (Kenya, South Africa, Cameroon, Nigeria and Malawi) focusing on policies around the major NCD risk factors. In Kenya, Shiroya et al. (2019) assessed Kenya's experience of translating the UN declaration to national policies for diabetes prevention and control.

The studies mentioned in the statement primarily focus on the global strategies, prevention, and control of non-communicable diseases (NCDs) and the adherence of primary care providers to guidelines for NCD management. While these studies provide valuable insights into the management of NCDs, they do not specifically address the training, skills, and motivation of Community Health Volunteers (CHVs) who are often at the forefront of healthcare service delivery in many low- and middle-income countries. The studies do not directly investigate the impact of CHV training, skills, and motivation on NCD service delivery. However, CHVs are an essential part of the primary healthcare system in many countries and play a critical role in the prevention, management, and control of NCDs at the community level. Therefore, it is important to investigate how CHV training, skills, and motivation can be improved to enhance the quality and effectiveness of NCD service delivery. This study therefore seeks to evaluate the strategy of task shifting and its

implication on service delivery of noncommunicable diseases using the lay health workers by looking at their competencies on NCDs, referrals, motivation, and the uptake of this strategy by the community in a low resource setting (Kibera).

1.3 Objectives of the Study

1.3.1 General Objective

The overall objective of this study is to evaluate task shifting and its implication on service delivery by community volunteers in the informal sector in Nairobi County.

1.3.2 Specific Objectives

i. To assess the effect of community health volunteers' task shifting skills on service delivery in noncommunicable diseases in Kibera.
ii. To evaluate the effect of training of community health volunteers task shifting on service delivery in noncommunicable diseases in Kibera.
iii. To determine the effect of motivation of community health volunteers task shifting on service delivery in noncommunicable diseases in Kibera.

1.4 Research Questions

This study will address the following research questions.

i. How do the task shifting skills of community health volunteers affect the delivery of services for noncommunicable diseases in Kibera?
ii. In what ways does training for community health volunteers task shifting skills affect service delivery in noncommunicable diseases in Kibera?
iii. How does the motivation of community health volunteers through task shifting affect the delivery of services for noncommunicable diseases in Kibera?

1.5 Significance of the Study

This study's findings will be of significance to the policy makers and others developing policies and structured frameworks on training and development of community health workers and their retention. Using the findings of the study, policy makers can come up with new policies or amend existing ones to enhance the effectiveness of task shifting. This will benefit the health industry by more desirable outcomes such as reduction of NCDs. It will also guide those organizations and counties using the lay health workers in coming up with organizational programs to enhance their skills related to the organizational goals. The findings will also add value to existing literature as well as open gaps for further research work to be conducted on task shifting in health service delivery.

1.6 Scope of the Study

The overall objective of this study was to evaluate task shifting and its implication on service delivery by community volunteers in the informal sector in Nairobi County. This study focused on the community health volunteers providing health services on non-communicable diseases, specifically those who specialize in diabetes and hypertension in Kibera Informal settlement. The ability, motivation and opportunity theory and expectation theory were used to guide this study. The current study adopted a positivist approach. This study employed a descriptive cross-sectional study design. Structured Questionnaires were be used to collect the data from the participants. The study was be carried out between March and May 2022.

1.7 Chapters Summary

Chapter 1 presented an overview of the research topic, objectives, rationale, and methodology. Chapter 2 provided a comprehensive literature review, identified gaps in current knowledge, highlighted key issues and debates, and established the theoretical framework. Chapter 3 described the research design and methodology, including data

collection, analysis techniques, sampling strategy, ethical considerations, and study limitations. Chapter 4 presented the findings and analyzed data collected, including detailed descriptions, tables, graphs, and interpretations of results. Finally, Chapter 5 summarized the key findings, concluded, discussed implications for theory, practice, and policy, provided recommendations, and discussed the study's limitations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews scholarly literature related to effects of task shifting strategies and its implication on the service delivery in healthcare. It includes Theoretical foundation, Literature Review of the study variables, empirical review, conceptual framework, operationalization of the variables and the research gap.

2.2 Theoretical Foundation of the Study

The ability, motivation and opportunity theory and expectation theory was used to guide this study.

2.2.1 Ability, Motivation and Opportunity Theory

This research was grounded on the Ability, Motivation and Opportunity (AMO) theory. Ability, Motivation and Opportunity (AMO) theory was authored by Appelbaum et al. (2000). This model was enriched by Blumberg and Pringle (1982) by the opportunity element reflecting working conditions, tools, materials, leader behaviors, procedures and time. AMO has been adopted extensively to potentially explain the complex relationship between how people are managed and subsequent performance outcomes (Kellner et al., 2019). This theory suggests that a combination of an individual's independent variables such as their knowledge and skills, competency, motivating factors and the opportunity given to them have a direct impact on their performance or quality of their work. This theory argues that human resource systems should be targeted towards strategic objectives and influences towards individuals Abilities(A), employees motivation (M) and Opportunity (O) for employees to contribute and gives us a measure of the individuals performance (expressed as AMO=P)(Lepak et al., 2006).

The AMO framework is assembled from basic concepts of psychology: motivation has been perceived as the incentive toward a behavior; ability as skills and capabilities either physical or mental essential to the performance of a behavior; and opportunity as contextual and situational constraints relevant to the performance of the behavior (Trošt, 2016). Recognizing and rewarding any of these expertise provides a stronger basis of performance engagement hence improving quality of care provided (Scheer et al., 2011).

Ability component of the AMO theory assumes that people want to apply for jobs and have attributes recognized, and are willing to learn new skills Generally, for people to be competent in their duties it needs a combination of knowledge, training, and experience (Lepak et al., 2006). Skills and competencies of the community health workers is about the training them on the area of interest, knowledge they gain from supportive supervision and experience they have on the management non-communicable diseases and how they can apply that knowledge to deliver services to their clients.

A well-functioning referral system allows for continuity of care across the different tiers of a health system. Referrals by the CHWs to public health facilities is an outcome of a well performing health workforce and acts as a bridge between the community and the health system, this can be used to prevent life threatening complications on NCDs (Give et al., 2019). In Kenya just like most of the other developing countries the health system is hierarchical, care starts at the primary care where the CHWs play a vital role then to secondary care facilities and then tertiary care facilities are the highest these provide highly specialized care. When the referral systems are weak or lacking especially for patients with chronic diseases including the NCDs, then the overall performance of care is affected leading to poor health outcomes due to complications (Kamau et al., 2017).

Ability on AMO framework shows that when the employee has the needed skills both soft and hard skills, they get the confidence to say I can do it. The soft skills for these community health volunteers include strong work ethics, clear communication, confidence, leadership, and a receptive attitude towards the criticism of the patients who are already

burdened by the long-term illness. A study done in healthcare clinics in the Mashhad, Iran, from 2013 to 2014, aimed to examine on the hypertension outcomes and the health literacy skills, and medication adherence in patients with uncontrolled blood pressure (BP) showed that the physicians who received communication training had better control of their patients BP (Belin et al., 2020). The hard skills will now depend on the training received in school or at workplace both technical /procedural and hands on skills. The community health volunteers dealing with NCDs are expected to take vital signs, provide minor wounds dressing care, educate on risk factors for NCDs and sometimes administer oral medication. Therefore, the need for competency in provision of quality health care.

Motivation is the drive that makes the community health volunteers to say I want to do it. Motivation is an important driver for health professionals to maintain their professional competencies, continue in the workforce and make a positive contribution to their workplace (Thi Hoai Thu et al., 2015). Intrinsic motivation comes from within, that means the community health volunteers enjoy what they are doing and get self-satisfaction from offering NCDs services to the community and hence they will be able to give good quality of care. Extrinsic motivation can be monetary or in form of kind appreciation by the community or from other health care providers who give transport or provide meals. Opportunity given to the community health volunteers to do the work by both the Healthcare workers who create the job design and provide a conducive and the community who can either accept their services or refuse to utilize it also affects the quality of the NCDs services. However, the AMO model has been criticised for being too simplistic. As a result, the researcher adopted a second theory.

In this study, the AMO theory provides insight into how task shifting skills, training and motivation of community health volunteers may be improved. According to the theory, individuals' performance depends on their ability, motivation, and the opportunity to perform.

Regarding ability, training programs can be implemented to equip community health volunteers with the necessary skills and knowledge to effectively carry out task-shifting in noncommunicable disease services. Additionally, supportive supervision can be provided to ensure that volunteers are able to apply their skills effectively. In terms of motivation, community health volunteers can be incentivized through various means such as recognition, appreciation, and remuneration. This can increase their willingness to perform tasks effectively and efficiently. Opportunity refers to the environmental factors that facilitate or hinder the performance of tasks. For instance, access to essential equipment and supplies, as well as a favorable policy environment, can increase the likelihood of successful task-shifting by community health volunteers.

Overall, the AMO theory can help to identify and address the factors that may influence the task shifting skills of community health volunteers, leading to improved service delivery in noncommunicable diseases.

2.2.2 Expectation Theory

Expectancy Theory of Motivation was developed by Victor H. Vroom in 1964 and extended by Porter and Lawler in 1968 (Parijat & Bagga, 2014). Vroom's expectancy theory assumes that behavior results from conscious choices among alternatives whose purpose it is to maximize pleasure and to minimize pain. The theory states that the intensity of a tendency to perform in a particular manner is dependent on the intensity of an expectation that the performance will be followed by a definite outcome and on the appeal of the outcome to the individual (Lloyd & Mertens, 2018). Vroom's expectancy theory of motivation is not about self-interest in rewards but about the associations people make towards expected outcomes and the contribution they feel they can make towards those outcomes (Baumann & Bonner, 2017).

Vroom uses the variables Expectancy, Instrumentality and Valence to account for this (De Simone, 2015). The Expectancy theory states that employee's motivation is an outcome of how much an individual wants a reward (Valence), the assessment that the likelihood that

the effort will lead to expected performance (Expectancy) and the belief that the performance will lead to reward (Instrumentality) (Lloyd & Mertens, 2018). Expectancy theory, when properly followed, can help managers understand how individuals are motivated to choose among various behavioral alternatives. To enhance the connection between performance and outcomes, managers should use systems that tie rewards very closely to performance (Parijat & Bagga, 2014).

Community health volunteers (CHVs) play crucial roles in enabling access to healthcare at the community levels (Abuya et al., 2021. Generally, a health worker will be motivated and express job satisfaction if they feel that they are effective at their jobs and performing well. Because volunteer CHWs may not be able to depend on financial earnings to meet their basic needs or to provide sufficient motivation, they are forced to accumulate a set of motivators that provides moral, material, and financial support and allows them to devote time to CHW-related activities (Greenspan et al., 2013).

2.2.3 Similarities and Differences of the Theories

Both the AMO (Ability-Motivation-Opportunity) theory and the Expectancy theory are motivational theories that can be applied to the study of Community Health Volunteers (CHVs). However, there are some key differences between the two. The AMO theory focuses on the factors that influence an individual's performance, while the Expectancy theory focuses on the psychological processes that underlie an individual's motivation to perform a task. According to the AMO theory, an individual's performance is determined by their ability, motivation, and opportunity to perform a task. Ability refers to the individual's skills, knowledge, and experience. Motivation refers to the individual's willingness to perform the task, while opportunity refers to the environmental factors that facilitate or hinder task performance (Scheer et al., 2011).

On the other hand, the Expectancy theory proposes that an individual's motivation to perform a task is influenced by three factors: expectancy, instrumentality, and valence. Expectancy refers to the individual's belief that they have the ability to perform the task.

Instrumentality refers to the belief that performing the task will lead to a desired outcome, and valence refers to the value that the individual places on that outcome.

In the context of CHVs, the AMO theory may be useful in identifying factors that can improve CHV performance, such as providing training and supervision, incentivizing CHVs, and ensuring that they have access to the necessary resources. The Expectancy theory, on the other hand, may be useful in understanding the psychological processes that underlie CHV motivation, such as their beliefs about their ability to perform tasks and the value they place on the outcomes of their work.

2.3 Empirical Review

This section reviews the empirical literature available on the study variables by discussion of each study variable where we further explore how the strategies outlined in the objectives relate with task shifting in management of NCDs.

2.3.1 Community Health Workers' Skills and Service Delivery

Literature globally shows the diversity of the competencies of CHVs across various programs. Their competencies differ depending on the program being implemented, as some are taken through training by the program implementers based on the services they are expected to provide. Supervision also contributes to improved competency in service delivery. Competency can be measured by analyzing the level of education of the CHWs, their knowledge on the task and the level of experience they have in the area. Skill is the ability of one to apply knowledge gained and the know how to perform a specific task, these skills can be either cognitive or practical skills. According to the WHO treat, train, retain recommendations, as much as task shifting has been born out of the need to address a chronic shortage of health workers, the approach should improve the overall quality of health services (WHO, 2008). This is done by setting standards governing the health workers' roles and associated competencies, recruitment, training, and supervision. Quality of services delivered can then be measured against the set standards. It is important,

therefore, to define the tasks the community health worker is expected to perform and clearly outline what competencies are needed to deliver those services efficiently. According to literature reviewed, role definition plays a key role in organizational performance. A study done in Ghana whose objective was to assess the nurses' knowledge and practice of hypertension management and control pre- and post-training utilizing task-shifting strategies, reported that if all nurses receive even brief training in the management and control of hypertension, major public health benefits are likely to be achieved in low-income countries like Ghana (Gyamfi et al., 2017). This was done using a survey before and after training of the nurses followed by a qualitative semi- structured interviews to understand the facilitators and barriers of optimal hypertension management. This agrees with studies on task shifting in maternal and infant health. According to a study that looked at the importance of addressing several key components that facilitate effective task shifting in maternal and newborn health care, the authors reported that one of the key components of task shifting is clear definition of roles and responsibilities. An interplay between different components which include policies on regulation, attention to qualification, education and training contribute to effectiveness of task shifting (Deller et al., 2015).

Competency of human resource is considered a key component of gaining a competitive advantage across the different sectors. In business, entrepreneurial competencies are related to a manager's knowledge, skills and capabilities as intangible and valuable resources that can contribute to a firm's sustainable competitive advantage (Tehseen & Ramayah, 2015). According to a study done on the effect of skills and competencies on performance in entrepreneurship, the authors used a cross sectional study design with structured interviews from 403 micro-entrepreneurs in Malaysia, they concluded that entrepreneurial competency which included skills and networks has a positive effect on the performance of the business (Al Mamun et al., 2019). A similar study done in a health care set up in Ethiopia by Medhanyie, Araya investigated the knowledge and performance of health extension workers (HEWs) on antenatal and delivery care. This cross-sectional study was used where a total of 50 HEWs covering a population of approximately 195,000

people, were interviewed. The authors concluded that the poor knowledge of HEWs, poorly equipped health facilities, and poor referral systems, made it difficult for HEWs to play a key role in improving health facility deliveries, skilled birth attendance, and on-time referral through early identification of danger signs (Medhanyie et al., 2012).

In another study done on the changing roles of CHWs the author notes that as CHW integration into healthcare organizations advances and as states move forward with CHW certification efforts, it is important to develop new competencies that relate to CHW–health system integration (Malcarney et al., 2017). In New Guinea, H E Ashwell et al compared the Current knowledge and clinical competency of CHWs with results on completion of basic community health worker training and found out that if CHWs' skills are to be maintained, certainly good supervision, in-service training and adequate logistic support are needed, but so also is a change in management thinking (Ashwell & Freeman, 1995). This is in agreement with Herman who notes that effective CHWs are strongly embedded on the community that they serve, clear supervision, by clearly defined roles within the health system, training and a defined system of advancing their education (Herman, 2011).

In this study, therefore, to evaluate the competencies and skills the community health workers have on non- communicable diseases and how this is affecting service delivery for management of these diseases the study will focus on the level of education, knowledge, supervision, and experience of the community health workers delivering NCDs care.

2.3.2 Training of Community Health Workers and Service Delivery

A systematic review by Woldie et al. (2018) found that most studies concluded that services provided by CHVs were not inferior to those provided by other health workers, and sometimes better. However, CHVs performed less well in more complex tasks such as diagnosis and counselling. Their performance could be strengthened by regular supportive supervision, in-service training and adequate logistical support, as well as a high level of community ownership. The use of CHVs in the delivery of selected health services for population groups with limited access, particularly in LMICs, appears promising.

However, success requires careful implementation, strong policy backing and continual support by their managers.

A study by Sarma et al. (2020) examined the individual, community and BRAC work environment factors that exert an influence on the performance of SS. Generally, BRAC provided basic training through the training division of BRAC when they started a new programme with SS. The training department of BRAC organised such training in batches with each batch containing 20 participants. The training department of BRAC is a separate department from the MIYCN programme department. They only organised training for newly recruited SS when they had 20 SS to fulfil a batch. Consequently, when BRAC field office recruited a new SS to fill a vacancy, they could not provide basic training to that SS immediately. Usually, a SS waits about four to six months to get the basic training even though they have started work. This creates additional challenges for untrained SS which influenced to their performance in home-fortification implementation as they were unable to respond to questions from community members, which undermined their credibility. There were some other challenges in organising timely training, including delays in allocating a training budget.

Kuule et al. (2017) sought to describe the socio-demographic and workplace characteristics affecting CHVs' performance in a public health program in rural western Uganda. Frequent refresher trainings and other engagement platforms such as regular supervisory meetings play an important role in the work output of CHVs. Whether it is the imparted knowledge, the continuous engagement with the formal health sector, the feeling of belonging, the fringe benefits or a combination of such, it is imperative for programs to continually provide an enabling environment to enhance performance of CHVs.

Sunjaya et al. (2021) study assessed the ability of community health volunteers (CHVs) before and after anthropometric training on infants and toddlers. The CHVs' skills before training were far from adequate. Although widely varied, all trainees improved their abilities. Stacking analysis showed that the skills of all CHVs in measuring infants and

toddlers increased by 2.68 and 3.34 logits, respectively. Racking analysis showed a decrease in the perceived difficulty of all items by 2.61 and 3.07 logits for infant and toddler measurements, respectively. The results of the racking analysis showed that the difficulty in measuring the anthropometrics of infants decreased more than that of toddlers.

2.3.3 Motivation of Community Health Workers and Service Delivery

Motivation of workers is defined as **"**the influences that account for the initiation, direction, intensity and persistence of behaviour**"** Motivation is associated with both intrinsic and external factors. Both financial and non-financial interventions have been used to motivate community health workers (Baumann & Bonner, 2017).

In Ethiopia, a study conducted in Oromia and Tigray regions to determine the factors contributing to motivation of volunteer community health workers, the authors explored variation of attributes between social and work-related determinants. The study indicated that non-financial incentives like career development are key in motivating CHWs especially where they are not given stipends. They also noted that for sustainability of CHWs programs, there should be enhanced innovations to strengthen supportive supervision, clear roles and recognition and appreciation schemes for their accomplishments and efforts (Jigssa et al., 2018). Recently in Pakistan, Mishal.S. Khan et al (2019) conducted a study to investigate how to most effectively motivate Lady health Workers (LHW) to engage more actively in tuberculosis case-finding. The study was embedded on a pilot intervention that provided financial and other incentives to LHW who refer the highest number of tuberculosis cases in three districts in Sindh province. The research findings revealed that internal drivers of motivation like social recognition or acceptance were important. While monetary gain was identified as a motivator by all interviewees, program managers expressed concerns about financial sustainability, and LHW indicated that financial incentives were less important than other sources of motivation (Khan et al., 2019). This is contrary to the general believe that monetary factors are the greatest motivators for employees. This agrees with a previous multi-country study

done by Armande K. Sanou et al in 2016, to investigate the factors influencing CHW motivation and retention in health service delivery. The study concluded that Most CHWs understood the volunteer nature of their position but desired community recognition and modest financial remuneration (Sanou et al., 2016)

A study done in Kenya by Aseyo et al. (2018) looked at realities and experiences of community health volunteers as agents for behavior change in a similar set up of an informal urban settlement in Kisumu. The authors concluded that Lack of compensation was noted as a demotivating factor for CHVs ("Realities and Experiences of Community Health Volunteers as Agents for Behaviour Change: Evidence from an Informal Urban Settlement in Kisumu, Kenya," 2018) and that the employees would need to be appreciated in some other way.

In Abuya et al. (2021) study, transport was considered the incentive attribute with most relative importance followed by tools of trade then monthly stipend. CHVs preferred job incentives that offered higher monthly stipends even though it was not the most important. They had negative preference for job incentives that provided award mechanisms for the best performing CHVs as compared with jobs that provided recognition at the community level and preferred job incentives that provided more tools of trade compared with those that provided limited tools.

2.3.4 Community Health Workers' Service Delivery

Mdege et al. (2013) conducted a systematic review of randomized controlled trials and quasi-experimental studies to assess the effectiveness of task-shifting, and its impact on costs of ART provision. The authors identified six effectiveness studies including a total of 19,767 patients. Non-inferior patient outcomes were achieved with task-shifting from doctors to nurses, health care professionals to mid-level or lay health workers. However, most of the identified studies were underpowered to detect any difference. Three studies were identified on the cost implications of task-shifting. Task-shifting resulted in substantial cost and physician time savings.

A systematic review by Seidman and Atun (2017) investigated whether task shifting in low-income and middle-income countries (LMICs) results in efficiency improvements by achieving cost savings. The authors identified 794 articles, and found that substantial evidence exists for achieving cost savings and efficiency improvements from task shifting activities related to tuberculosis and HIV/AIDS, and additional evidence exists for the potential to achieve cost savings from activities related to malaria, NCDs, NTDs, childhood illness, and other disease areas, especially at the primary health care and community levels.

Chatio et al. (2019) study assessed the level of performance and factors that affect the performance of health volunteers' activities in Northern Ghana. Performance of CBHVs was conceived in terms of the number of times a volunteer attended meetings, submitted reports, participated in immunization activities such as organizing mothers for weighing and providing health education to community members. The results showed that majority of the volunteers 77.4% (154) always attended meetings, 77.5% (155) always submitted reports to their supervisors and 67.3% (134) always took part in immunization activities at the community level whilst 86.5% (173) carried out health education. The overall performance of the volunteers was assessed on the combination with volunteers' ability to always attend meetings, always submit reports to their supervisors, always taking part in immunization activities by organizing mothers for weighing at the community level and always providing health education to community members. Volunteers who reported always taking part in these four activities had a high-performance rating whilst volunteers who reported that they somehow took part in at least one of the activities were considered low performing volunteers. The results showed that 45% (90) of volunteers scored high on performance whilst 55% (110) of the volunteers scored low on performance.

Crowley and Mayers (2015) appraised current trends in task shifting related to HIV treatment programmes to evaluate evidence related to the effectiveness of this strategy in addressing human resource constraints and improving patient outcomes, challenges identified in practice, and the acceptability of this strategy to the health professionals. Evidence suggests that task shifting is an effective strategy for addressing human resource

constraints in healthcare systems in many countries and provides a cost-effective approach without compromising patient outcomes. Challenges include inadequate supervision support and mentoring, absent regulatory frameworks, a lack of general health system strengthening, and the need for monitoring and evaluation. The strategy generally seems to be accepted by the health professions, although several arguments against task shifting as a long-term approach have been raised.

Kuule et al. (2017) sought to describe the socio-demographic and workplace characteristics affecting CHVs' performance in a public health program in rural western Uganda. Seventy-eight percent of the CHVs had ≥80% of pregnant women under their care delivering in health units, 71% had ≥95% of the children on schedule for routine immunization, while 27% screened ≥75% of the children under 5 years for malnutrition.

A study by Ouedraogo et al. (2020) found out that the task sharing and task shifting can expand and increase access to services as stated by 95% of the respondents. Most community health workers provided more of the family planning services at 45% with only 5% of the services of family planning being provided by medical officers. 98% of family planning services were integrated with other services. Task shifting was beneficial to the health care providers as well as the clients and the success of task sharing and task shifting depended on training, supportive supervision and a regulated environment through policies.

2.4 Summary of Literature and Research Gaps

The foregoing chapter reviewed several studies on the various independent variables. On community health workers skills and service delivery, studies reviewed show that majority of community health workers had skills. However, majority of the studies did not seek to find out how the skills impact the service delivery. There were a lot of studies on training of Community Health Workers but few focused on the effect on service delivery. Studies on motivation of community health workers did not assess the effect of motivation on service delivery.

The researcher found that majority of studies on community health volunteers are scarce. Majority of studies on healthcare workers have focused on nurses and doctors leaving a knowledge gap. Similarly, studies on service delivery among community health volunteers are scarce. In addition, studies on task shifting in Kenya were very few. Table 2.1 shows the gaps in the studies to fill these gaps, this study therefore seeks to evaluate task shifting and its implication on service delivery by community volunteers in the informal sector in Nairobi County.

Table 0.1 Research Gaps

Author	Title	Findings	Research Gap
Edwards, Jeffrey K Reid, Tony Bergh, Rafael Van Den Kosgei, Rose J Wilkinson, Ewan Baruani, Bienvenu Kizito, Walter Khabala, Kelly Shah, Safieh	Task shifting the management of non-communicable diseases to nurses in Kibera, Kenya: Does it work?	study demonstrated that nurses working within a resource-constrained, primary care and HIV setting, can successfully follow protocols managing stable patients with multiple NCDs.	The study focused on nurses only thus focus was on care at the health facilities while the current study looks at the community health workers services at the community level.
R.Zachariaha,N.Fordb, M. Philipsc, S.Lynchb, M. Massaquoid, V.Janssensa, A.D. Harriese,	Task shifting in HIV/AIDS: opportunities, challenges, and proposed actions for sub-Saharan Africa.	The authors concluded that task shifting must be seen as part of an overall strategy that includes tangible measures to increase, retain and sustain existing and new cadres of staff	The study however was not focused on other conditions apart from HIV
Tehseen, Shehnaz Ramayah, T.	Entrepreneurial competencies and SMEs business success:	The entrepreneurs should be competent enough to manage their relationships with their	The study was however done in a different

	The contingent role of external integration	customers and suppliers to get competitive advantage.	context (a business context)
Aseyo, Rose Evalyne Mumma, Jane Scott, Kerry Nelima, Damaris Davis, Emily Baker, Kelly K. Cumming, Oliver Dreibelbis, Robert	Realities and experiences of community health volunteers as agents for behavior change: Evidence from an informal urban settlement in Kisumu, Kenya	Lack of compensation was noted as a demotivating factor for CHVs.	The study setting was in Kisumu County while this study focuses on Nairobi
Some, David Edwards, Jeffrey K. Reid, Tony Van Den Bergh, Rafael Kosgei, Rose J. Wilkinson, Ewan Baruani, Bienvenu Kizito, Walter Khabala, Kelly Shah, Safieh Kibachio, Joseph Musembi, Phylles	Task shifting the management of non-communicable diseases to nurses in Kibera, Kenya: Does it work?	Nurses can adhere to protocols for managing stable NCD patients based on clear and standardized protocols and guidelines, thus paving the way towards task shifting of NCD care to nurses to help relieve the significant healthcare gap in developing countries.	The study however used a retrospective study design while this study will use a descriptive cross-sectional design

2.5 Conceptual Framework

The figure below shows the conceptual framework of the study, the independent variables of competency, functioning referral system, motivation, and acceptability of services in terms of community appreciation contribute to the performance of the CHWs in management of NCDs.

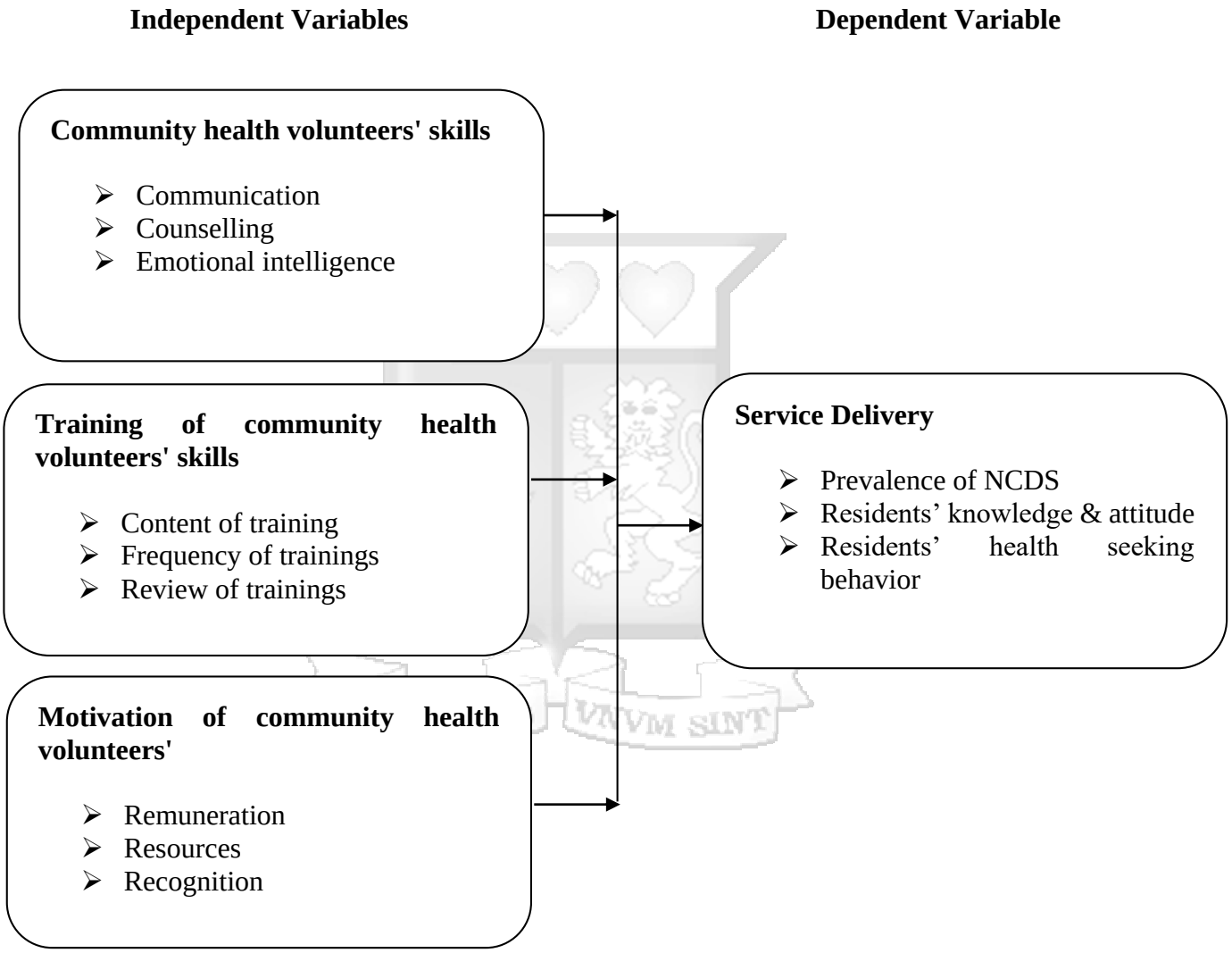


Figure 0.1 Conceptual Framework

Table 2.2 Operationalisation Table

Variable name	Type of variable	Indicators	Measurement	Analysis
CHV Skills	Independent	• Communication • counselling, • emotional intelligence • professionalism.	Nominal	Descriptive, regression
CHV training	Independent	Content of training, frequency of trainings, review of trainings	Nominal	Descriptive, regression
CHV motivation	Independent	Remuneration, resources, recognition	Nominal	Descriptive, regression
Service delivery	Dependent	Prevalence of NCDS, residents' knowledge, residents attitudes, lifestyle changes and residents health seeking behaviour	Nominal	Descriptive, regression

2.6 Chapter Summary

This chapter presented the review of relevant literature. It included a theoretical foundation of the study and an empirical review. The summary of literature and gaps in literature was presented. In addition, a conceptual framework was presented. The next chapter presents the methodology to be used in the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the proposed methodology which includes the study design, location of the study, target population, sample size and sampling method, data collection instruments, data analysis and presentation and the ethical issues of the study.

3.2 Research Philosophy

A research philosophy is a belief about the way in which data about a phenomenon should be gathered, analyzed and used. It is a framework that guides how research should be conducted based on ideas about reality and the nature of knowledge (Žukauskas, Vveinhardt & Andriukaitienė, 2018). There are different types of research philosophies: the positivist research philosophy, interpretivist research philosophy, pragmatist research philosophy, and realistic research philosophy. The current study will adopt a positivist approach. Positivism relies on the hypothetico-deductive method to verify a priori hypotheses that are often stated quantitatively, where functional relationships can be derived between causal and explanatory factors (independent variables) and outcomes (dependent variables). Positivists prefer quantitative methods such as social surveys, structured questionnaires and official statistics because these have good reliability and representativeness (Park, Konge & Artino, 2020).

3.3 Study Design

Research design is the framework of research methods and techniques chosen by a researcher (Aggarwal & Ranganathan, 2019). This study employed a descriptive cross-sectional study design. Descriptive research design is a type of research design that aims to obtain information to systematically describe a phenomenon, situation, or population. (Sielecki, 2020) A cross-sectional study is a type of research design in which you collect data from many different individuals at a single point in time. Studies with a cross-sectional study design involve the collection of information on the presence or level of one or more variables of interest, whether

exposure or outcome as they exist in a defined population at one particular time (Aggarwal & Ranganathan, 2019). The justification of this design, therefore, is that it allows the researcher to work with many variables. Using this design, the researcher had the advantage of utilizing few financial resources in carrying out the study.

3.4 Location of the Study

This study was conducted in Kibra constituency. This is because it is the biggest informal settlement in Nairobi. Kibera is in southwest in Nairobi County, roughly 5 kilometers from the city Centre. Much of its southern border is bounded by the Nairobi River and the Nairobi Dam, an artificial lake that provides drinking water to the city's residents. Kibera is divided into 13 villages, including Kianda, Soweto, Gatwekera, Kisumu Ndogo, Lindi, Laini Saba, Siranga/Undugu, Makina, Mashimoni, Olympic, Ayany and Raila village.

3.5 Target Population

The target population is the group of individuals whom the intervention intends to conduct research in and draw conclusions from (Patten & Newhart, 2017). The study targets community health volunteers in Kibra. According to the Nairobi County Government (2021), there are 225 CHVs in the study area.

3.6 Sample Size and Sampling Technique

Sampling is a technique of selecting individual members or a subset of the population to make statistical inferences from them and estimate the characteristics of the whole population. A sample is a smaller set of data that a researcher chooses or selects from a larger population using a pre-defined selection method (Etikan & Bala, 2017). Slovin's formula was used to calculate the sample size

$n = N / (1 + N e^2)$ (Tejada & Punzalan, 2012).

where "n" represents the sample size, "N" represents the population while e is the margin of error

Therefore, in a population of 225 CHVs

$n=225/ (1+225*0.05^2) =144$

The study, therefore, used a sample of 144 respondents. The respondents were selected by lottery method. A list of all CHVs working in Kibra was obtained from the County Government of Nairobi. A table of random numbers was used in sampling. A random number table is a series of digits (0 to 9) arranged randomly in rows and columns. Numbers in the list are arranged so that each digit has no predictable relationship to the digits that preceded it or to the digits that followed it (Tuncer & Avaroğlu, 2017; Sarmah & Chakrabarty, 2017). Using this strategy, the researcher chose the respondent whose serial number corresponds to the random number drawn from the table of random numbers. This was repeated until a sample of 144 of the CHVs was selected. These formed the respondents in the study. Using a random number table, all population members would have an equal and independent chance of being selected for the sample group.

3.7 Data Collection

This study relied on primary data which was collected using a questionnaire. A semi-structured questionnaire was used to collect data from the respondents. The questionnaire contain several parts such as demographic characteristics, skills, training, motivation and service delivery. The questionnaire was both researcher-administered and self-administered. The questionnaire had both open ended and close ended questions. To collect data, the researcher engaged five research assistants. These assistants were trained on the importance of the study, consent acquisition, data collection and data entry. To gain experience, the assistants were involved in the pilot phase of the study. The community health extension worker in Kibra was used to identify CHVs in the study area. Once a respondent was identified, their consent would be sought. Where consent was granted they would be given the questionnaire to fill. They would be given one week to fill the questionnaire to enhance response rate. The field data collection phase took one month.

3.8 Research Quality

Good quality research provides evidence that is robust, ethical, stands up to scrutiny and can be used to inform policy making (Waltehr et al., 2017). According to Belcher et al. (2016), quality research most commonly refers to the scientific process encompassing all aspects of study design; in particular, it pertains to the judgment regarding the match between the methods and questions, selection of subjects, measurement of outcomes, and protection against. In this study, research quality relates to validity and reliability.

3.8.1 Validity

Validity is the amount of systematic or built-in error in questionnaire (Heale & Twycross, 2015). Content validity refers to the extent to which the items on a test are fairly representative of the entire domain the test seeks to measure (Mohajan, 2017). The content validity of the instruments was realized after seeking the expert opinion that is the assigned University supervisor on the content of the questionnaires. The questionnaires were reviewed to ensure no errors or omissions are present.

3.8.2 Reliability

Reliability (or consistency) refers to the stability of a measurement scale, a scale measures what it is intended to measure. i.e. how far it will give the same results on separate occasions ((Bannigan & Watson, 2009). In quantitative research, reliability refers to exact replicability of the processes and the results (Leung, 2015) while in qualitative data, the essence of reliability lies with consistency. To establish the reliability of the questionnaire in this study, a pre-test was conducted in Mathare. A total of 14 respondents, which was ten percent of the main sample was involved in the study. Data was collected and analyzed using Statistical Package for the Social Sciences (SPSS). Cronbach alpha was used to test for reliability whereby a coefficient of 0.7 and above was accepted.

3.9 Data Analysis and Presentation

Data analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data (Ott & Longnecker, 2015). Data collected was checked for errors and omissions and then coded accordingly. Descriptive and chi-square analysis were used to analyze data using SPSS. Descriptive statistics were used to establish demographic characteristics, skills, training, motivation and service delivery. To establish relationships, regression analysis was conducted. Results were presented in form of tables. The correct preparation of tables allows researchers to present information about tens or hundreds of individuals efficiently and with significant visual appeal, making the results more easily understandable and thus more attractive to the users of the produced information (Duquia et al., 2014).

3.10 Results Dissemination

Once the study is completed, a copy will be submitted to the library at Strathmore University. From the thesis, two papers will be prepared and published in peer reviewed journals. In addition, a summary of the findings and recommendations will be sent to the County Government of Nairobi City County and ministry of health.

3.11 Ethical Considerations

Research ethics is a codification of scientific morality in practice. Ethical considerations in research are a set of principles that guide research designs and practices (George, 2016; Dooly, Moore & Vallejo, 2017). Research permit to carry out this study was sought from the National Council for science and Technology (NACOSTI) after acquisition of an approval from the Strathmore University Institutional and Ethical Research Committee (SU-IERC). Approval to carry out the research in Kibera will be sought from Nairobi Health Department. The researcher also ensured fairness protection of the integrity of the participants' responses and identity by not revealing their names and an informed consent sought from the respondents. Participation in the study was also voluntary. Only respondents who were willing to take part in the study and provided consent were included. Respondents were not required to provide their names and codes were used instead. Once data was collected, it was coded and stored in

a password protected computer. Only the researcher and her supervisors would have access to the data. Results of the study were meant for academic purpose.

3.12 Chapter Summary

This chapter presented the methodology which was used to carry out this study which seeks to evaluate task shifting and its implication on service delivery by community volunteers in the informal sector in Nairobi County. It included the research design and philosophy. The population and sample are defined. Methods of data collection, including the development and administration of a questionnaire were discussed. Procedures used to interview the respondents were described.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

The main objective of this study was to evaluate task shifting and its implication on service delivery by community volunteers in the informal sector in Nairobi County. This chapter presents the research findings of the study. Descriptive statistics were used to determine respondents' demographic characteristics, skills, training, motivation, and service delivery. The chi-square test of independence was utilized to evaluate associations between demographic characteristics and NCDs experience, CHV training, NCDs training, and NCDs knowledge. Reliability analysis (relying on Cronbach alpha) was conducted to assess the internal consistency of the measures. Regression analysis was deployed in establishing the extent of the relationships between service delivery and the independent variables (skill, motivation, and training). Data analysis was conducted in SPSS version 22, and results were presented in tables and graphs for easier reading and comprehension.

4.2 Response Rate

The study targeted 144 Community Health Volunteers in Kibera area of Nairobi County to whom the questionnaires were administered. Out of these questionnaires, the researcher collected 131 that were properly filled and returned for further analysis. This translates to a response rate of 91% which according to Saunders, Lewis and Thornhill (2009), had met the 50% threshold required for the analysis.

4.3 Demographic Profile of Respondents

The demographic analysis, which forms part of the background information, of the Community Health Volunteers is provided in this section in line with the objective of the study. The main categories of demographic analysis that were done included gender, age, level of education and nature of the site that the CHVs were located.

The demographic profile of the respondents is as presented in Table 4.1 below:

Table 4.1: Demographic Profile of the respondents

Row Labels	Female	Male	Grand Total
College Diploma	**60**	**20**	**80**
20-30 yrs	18	11	29
31-40 yrs	22	5	27
41-50 yrs	20	3	23
51-60 yrs	0	1	1
Degree	**2**	**3**	**5**
20-30 yrs	1	3	4
31-40 yrs	1	0	1
Primary School	**33**	**8**	**41**
20-30 yrs	2	0	2
31-40 yrs	9	0	9
41-50 yrs	19	6	25
51-60 yrs	3	2	5
Secondary School	**2**	**3**	**5**
20-30 yrs	1	1	2
31-40 yrs	1	1	2
41-50 yrs	0	1	1
Grand Total	**97**	**34**	**131**

From the table above 74% of the respondents were female while 26% were male. This meant that we have more female CHVs in Kibera as opposed to their male counterparts.

Respondents of ages 20 – 60 years were represented, with a majority of the respondents (37.4%) being in the 41 – 50 years age category followed by respondents in the 31 – 40 years (29.8%) age category, and the 20 -30 years (28.2%) age category. The smallest proportion (4.6%) of the respondents were aged 51 – 60 years.

A majority of the respondents (61.1%) had a college diploma qualification, followed by those with a primary school qualification (31.3%). Respondents who had a secondary school

qualification and those with a degree qualification were equal (5%) and relatively fewer. A large percentage of the respondents (71.8%) were from the public nature of site, followed by those from the NGO (19.8%), Faith-based (5.3%), and Private nature of site (3.1%).

Table 4.1 also shows that 46% of the females had a college diploma compared to 15% of the male with the larger group being at the range of 21-30 and 31-40 with college diplomas. The study also found out that two of the female CHVs had a degree and three of them being male, making a total of five CHVs who held undergraduate degrees. Generally, in terms of education ratings, the highest number of CHVs had college diploma (61.1%) followed by primary school (31.3%). Those who held a university degree and secondary school were the least with five participants each, which was 3.8% of the entire population.

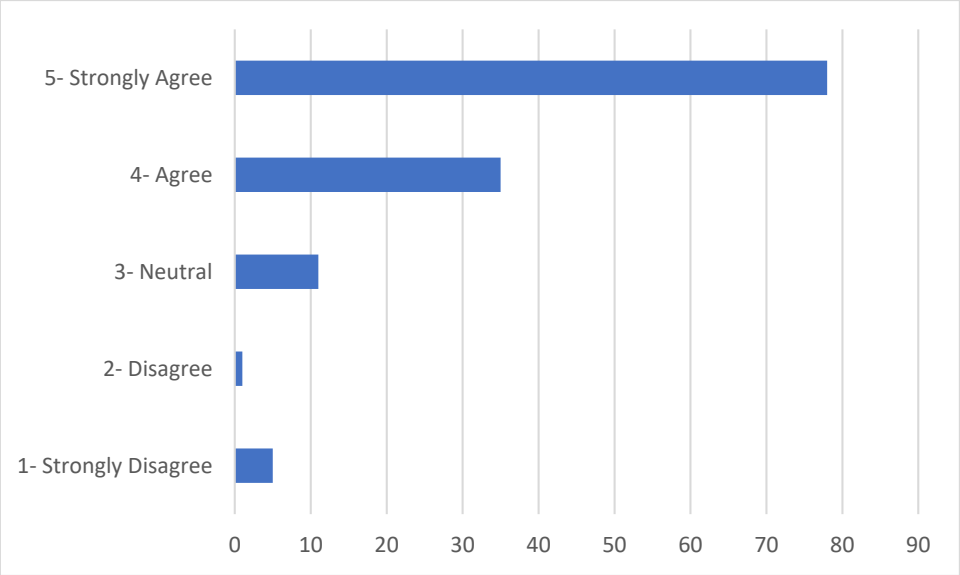
4.4 Effect of CHVs Skills On Service Delivery in Non-Communicable Diseases in Kibera.

This was the first objective of the study; to analyse the effect of CHVs skills on service delivery of NCDs in Kibera. Skills have been noted to be critical for service delivery among CHVs since they determine the competency of the staff and ultimately the quality of care that the NCDs patients would be given. Coupled with skills is the level and quality of supervision of the CHVs. Available literature shows that implementing partners in the healthcare sector have a role, according to WHO standards, to retool and continue upskilling CHVs if they are to effectively meet the demand of healthcare. In this objective, CHVs were asked to rate the skills they have in communication, counselling, handling NCDs, acting professionally, social skills and need for training.

4.4.1 Communication Skills

To gauge the communication skills of the CHVs, they were asked to what extent they are able to communicate with the community members. The figure below shows the responses.

Figure 4.1: Communication Skills



From the figure above, 79 (60%) CHVs noted that they are able to communicate well with the community members while 35 of them agreed to being able to communicate well with the members. This gives a cumulative percentage of 87% of the CHVs with good communication skills. The mean of the communication skills was at 4.4 out of 5 and a standard deviation of 0.96 as shown in the table below:

Table 4.2: Communication Skills

	N	*Mean*	*SD*	*Minimum*	*Maximum*
Skills: Communication	131	4.4	0.96	1	5

4.4.2 Counselling Skills

Counselling skills are important as the CHVs, by the nature of their work, are supposed to offer psychosocial services to the community members. This question assessed whether the CHVs are counsel the community members on non-communicable diseases. The responses are as shown below:

Table 4.3: Counselling Skills

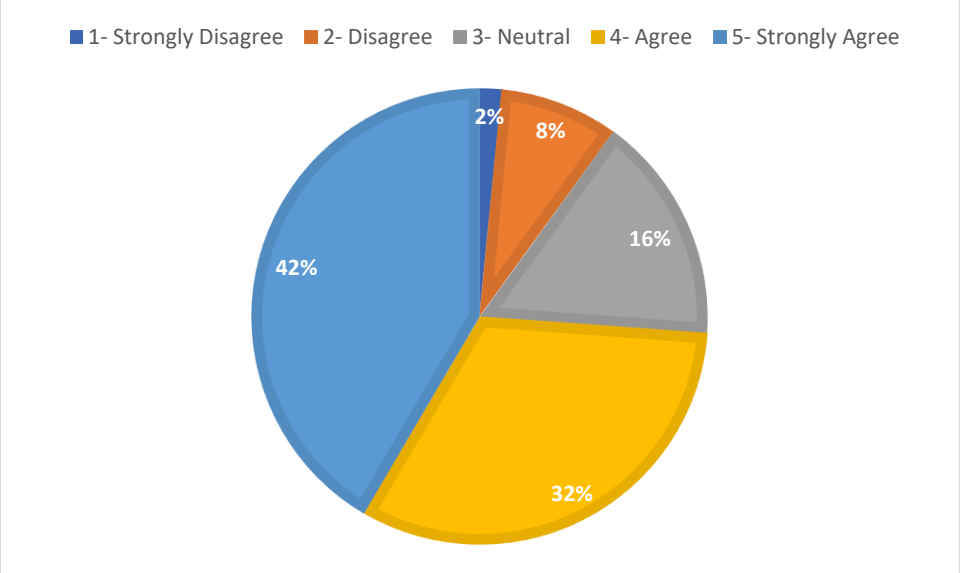
Counselling Skills	N	Percentage
Strongly Disagree	3	2%
Disagree	3	2%
Neutral	11	8%
Agree	45	34%
Strongly Agree	69	53%
Total	**131**	**100%**

From the table above, 53% of the CHVs strongly agreed to having counselling skills, 34% agreed, 8% were neutral while for disagree and strongly disagree was 2% each. The above figures show that a majority of the CHVs have counselling skills that enable them effectively to counsel the community members on NCDs.

4.4.3 Skills for Handling NCDs

This question sought to check whether the CHVs had necessary skills to deal with non-communicable diseases in the community. The following were the responses.

Figure 4.2: Skills for Handling NCDs



From the graph above, 42% strongly agreed that they have the requisite skills while 32% agreed to having the skills. On the other extremes, 8% and 2% disagreed and strongly disagreed respectively while 16% were neutral.

The table below shows the interaction between the level of education and skills. A majority of the CHVs noted that they had been trained, at 87.2% while 12.8% had not been trained. A total of 21 respondents gave a neutral response. Of those trained, the highest had a College diploma, followed by primary school certificate and secondary school while there was only one holding a degree that was trained.

Level of Education and Skills				**Total**
		Yes	No	
Level of Education	Primary	31	4	35
	Secondary	3	0	3
	College	60	8	68
	University	1	2	3
Total		**95**	**14**	**109**

4.4.4 Professionalism

On this question, the CHVs were asked to rate their commitment to engage the community members who require NCDs support professionally. The responses were as follows.

Table 4.4: Professionalism

Professionalism	n	Percentage
1- Strongly Disagree	3	2%
2- Disagree	2	2%
3- Neutral	16	12%
4- Agree	51	39%
5- Strongly Agree	59	45%
Total	**131**	**100**

The table above shows that a majority (45%) strongly agreed that they have professional skills to engage the community members, 39% agreed while 2% disagreed and strongly disagreed. This shows that the community health volunteers in Kibera have professional skills to engage the community members on NCDs.

4.4.5 Social Skills

This question sought to review whether have the social skills to interact with community members in their work. The responses are captured in the table below.

Table 4.5: Social Skills

Social Skills	n	Percentage
1- Strongly Disagree	3	2%
2- Disagree	6	5%
3- Neutral	7	5%
4- Agree	40	31%
5- Strongly Agree	75	58%
Total	**131**	**100**

Majority of the respondents (58%) indicated that they have the requisite social skills to interact with the community members in their work, 5% disagreed to having the requisite skills while 7% were neutral.

4.4.6 Experience with NCDs

Responses on experience with NCDs are as per the table below.

Table 4.6: Social Skills and Experience with NCDs

Social skills and Experience	0-5 yrs	11-15 yrs	16-20 yrs	21-30 yrs	6-10 yrs	Total
Female	**40**	**15**	**5**	**2**	**35**	**97**
20-30 yrs	18	2	1	**0**	1	22
31-40 yrs	10	2			21	33
41-50 yrs	11	11	3	2	12	39
51-60 yrs	1		1		1	3
Male	**19**	**2**	**2**	**1**	**10**	**34**
20-30 yrs	13	**0**	1	**0**	1	15
31-40 yrs	3	0	0	0	3	6
41-50 yrs	3	2	1	0	4	10
51-60 yrs	0	0	0	1	2	3
Grand Total	**59**	**17**	**7**	**3**	**45**	**131**

As shown in table above, a majority of the respondents (45%) indicated that they had 0 -5 years of experience with NCDs, followed by respondents with 6 – 10 years of experience with NCDs (34.4%). A small percentage of the respondents (2.3%) had 21 – 30 years of experience with NCDs followed by respondents with 16 – 20 years of experience with NCDs (5.3%). A great percentage of the respondents (94.7%) had CHV training. Further, the majority of CHVs who had social skills had between 0-10 years while the ones who had least social skills are the ones who had the highest experience, showing that the younger CHVS had better social skills when compared to the older.

4.5 Effect of Training of CHVs on Service Delivery for Non-Communicable Diseases

This is the second objective of the study which set out to evaluate the effect of training of community health volunteers task shifting on service delivery in noncommunicable diseases in the informal urban settlement of Kibera. This objective was measured in terms of whether the CHVs were trained, the extent of specific training on NCDs, the frequency of the trainings, training content rating and more importantly whether the trainings had any effect on the nature of their knowledge of NCDs.

4.4.2 Trained CHV

The table below shows the number of the Community Health Volunteers who have been trained against those who are yet to be trained.

Table 4.7: Trained CHV

		Training CHV		Total
		Yes	No	
Age	21-30	32	5	37
	31-40	39	0	39
	41-50	47	2	49
	51-60	6	0	6
Total		**124**	**7**	**129**

From the table above, it is evident that 74.4% of the CHVs had received some form of training while the rest 5.3% said that they had not been trained. This training was not specific to training on NCDs. Of all the CHVs, 96

4.4.3 NCDs Training

The researcher further asked the CHVs if they had been trained on noncommunicable diseases. Similarly, a large number of the respondents (73.3%) had NCDs training.

Table 4.8: Training on NCDs

		Training NCDs		Total	Percentage
		Yes	No		
Gender	Male	24	10	34	26.4
	Female	72	23	95	73.6
Total		**96**	**33**	**129**	**100**

From the above table 18.6% of the male CHVs had been trained on CHVs while 55.8% were female. The remaining 25.6% had not received any NCDs training. The study also found out that more females had been trained as compared to their male counterparts.

Table 4.9: Level of Education and Training on NCDs

Level of Education and Training				**Total**
		Yes	No	
Level of Education	Primary	36	3	39
	Secondary	4	1	5
	College	52	28	80
	University	4	1	5
Total		**96**	**33**	**129**

The table below analysed the relationship between the level of education and training. The study found out that, overall, the level of education and training on NCDs for CHVs is an important consideration in ensuring that they have the knowledge and skills necessary to effectively prevent and manage these conditions at the community level.

4.4.4 NCDs Training Frequency

The training frequency of most respondents (49.6%) was after several months, followed by respondents who trained after several years (18.3%), and respondents who trained monthly (17.6%). Only a small percentage of respondents (3.8%) trained weekly.

Table 4.10: NCDs Training Frequency

Training frequency		
Weekly	5	3.8
Monthly	23	17.6
After several months	65	49.6
Annually	14	10.7
After several years	24	18.3

4.4.5 Knowledge of NCDs

The table below represents statistics of CHVs' knowledge of CHVs

Table 4.11: Knowledge of NCDs

Knowledge NCDs		
High	28	21.4
Fair	85	64.9
Low	18	13.7
Total	131	100

A large number of respondents (64.9%) indicated that they have a fair knowledge of NCDs while a small number of respondents (13.7%) indicated that they have a low knowledge of NCDs.

4.4.6 Training Content Rating

A great percentage of respondents (64.9%) rated training content as high. See the table below.

Table 4.12: Training Content Rating

Content rating		
High	33	25.2
Fair	85	64.9
Low	12	9.2
No response	1	.8

Note. *N* = 131 total number of respondents.

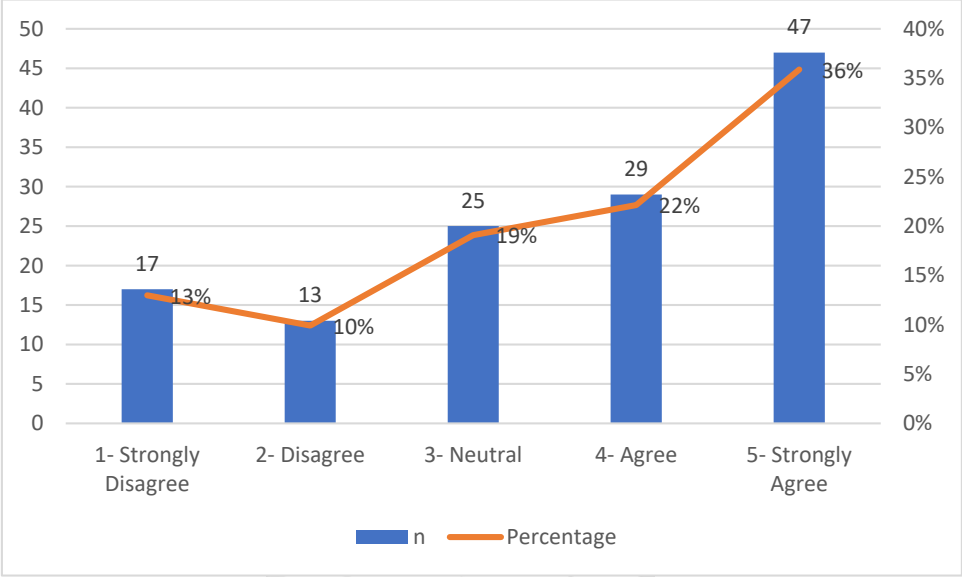
4.5 Effect of Motivation of Community Health Volunteers Service Delivery

This was the third objective of the study that evaluated the effect of motivation of community health volunteers task shifting on service delivery in noncommunicable diseases in the informal urban settlement of Kibera. The motivation was assessed in terms of whether CHVs enjoy their work, satisfaction with incentives, motivation to work on non-monetary support, appreciated by the community they serve and finally whether they felt appreciated by the government.

4.5.1 CHVs Enjoy Work

The figure below shows whether CHVs are motivated and enjoy their work.

Figure 4.3: CHVs Enjoy their Work

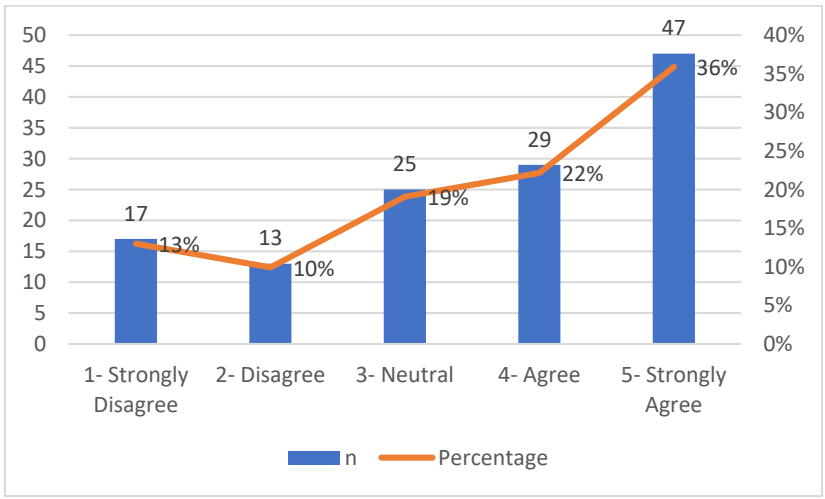


The findings indicate that a majority of the CHVs, 51%, strongly agreed that they enjoy their work followed by 31% agreeing, 11% were neutral while 2% disagreed to enjoying their work and 5% strongly disagreeing.

4.5.2 Satisfied with Incentives

Figure 4.4 shows whether the CHVs are satisfied with incentives they receive.

Figure 4.4: Satisfaction with Incentives



Most of the CHVs responding, 26%, to this question were dissatisfied with the incentives they receive for performing their objectives. The ones satisfied with the incentives were at 24%. The mean responses for this question was at 3.0 and a standard deviation of 1.55 showing an almost equal number who are satisfied and dissatisfied with the incentives.

4.5.3 Work Non-Monetary

The CHVs were asked if they would work without monetary gains. The responses are recorded in the table below.

Table 4.13: Work Non-monetary

Work Non-Monetary	n	Percentage
1- Strongly Disagree	34	26%
2- Disagree	24	18%
3- Neutral	9	7%
4- Agree	28	21%
5- Strongly Agree	36	27%
Total	131	100%

4.5.4 Appreciated by the Community

The table below represents opinions by the CHVs on whether they feel appreciated by the community that they are serving.

Table 4.14: Appreciated by Community

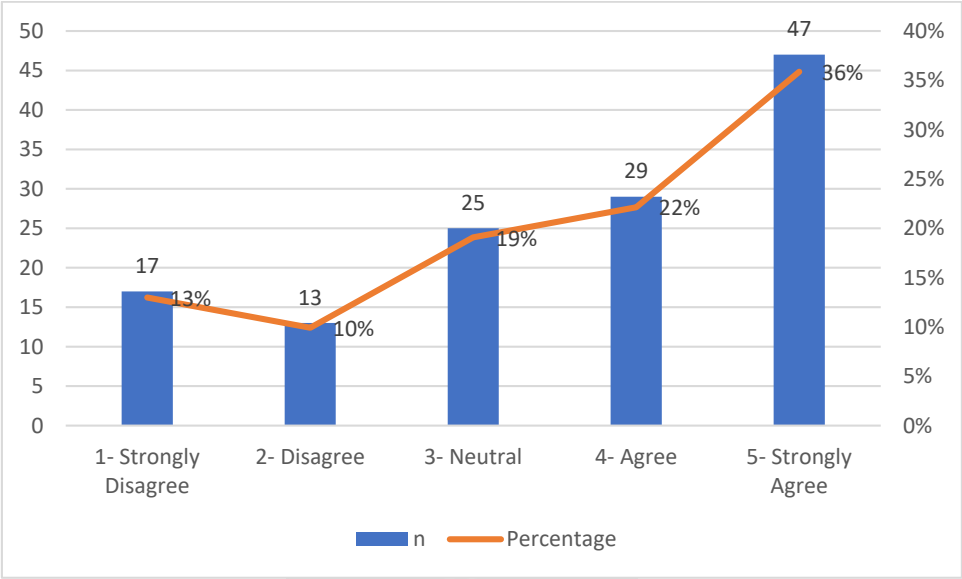
Appreciated by Community	n	Percentage
1- Strongly Disagree	5	4%
2- Disagree	4	3%
3- Neutral	7	5%
4- Agree	47	36%
5- Strongly Agree	68	52%

Total	**131**	**100%**

4.5.5 Appreciated by the Government

The table below represents opinions by the CHVs on whether they feel that the government appreciates their work.

Figure 4.5: Appreciation from Government



From the figure above, the findings indicate that a majority of the respondents felt that they had the required support from the government, which is a motivating factor. The cumulative percentage of those who agree is 58% while those who disagree to receiving support from the government total to 23% cumulatively.

4.6 Summary Statistics

As shown in Table 4.3, the six items of the skill subscale have an average of around 4 (agree). The average of the motivation (enjoy work) item is 4.2, and the average of the motivation (appreciated by the community) item is 4.3. The four items of service delivery (SD) have an average of about 4 (agree). All the items range between 1 and 5.

Table 4.15: Summary Statistics

	N	*Mean*	*SD*	*Minimum*	*Maximum*
Skills: Communication	131	4.4	0.96	1	5
Skills: Counselling	131	4.3	0.90	1	5
Skills: Handle NCDs	130	4.0	1.03	1	5
Skills: Professionalism	131	4.2	0.89	1	5
Skills: Social	131	4.4	0.95	1	5
Skills: Need training	131	4.6	0.75	1	5
Motivation: Enjoy work	131	4.2	1.06	1	5
Motivation: Satisfied incentives	131	3.0	1.55	1	5
Motivation: Work non-monetary	131	3.1	1.60	1	5
Motivation: Appreciated by community	131	4.3	0.98	1	5
Motivation: Appreciated by government	131	3.6	1.40	1	5
SD: Comm knowledgeable	129	3.7	1.07	1	5
SD: Comm better attitude	128	3.8	0.97	1	5
SD: Comm better lifestyle	128	3.7	1.10	1	5
SD: Comm seek information	128	4.1	1.03	1	5

4.6.1 Association between Demographic Characteristics and NCDs Experience

Chi-square test of independence results (Table 4.4 Row 1) shows that there is no significant association between gender and NCDs experience, $X^2\ (4) = 3.42, p = .491$. NCDs experience is independent of gender. The second row reveals that there is a significant association between age group and NCDs experience, $X^2\ (12) = 58.72, p < .001$. The third row shows that there is a significant association between education level and NCDs experience, $X^2\ (12) = 26.51, p = .009$.

Table 4.16: Experience by Demographic Characteristics

	Pearson Chi-square	*df*	*p*
NCDs experience by gender	3.42	4	.491
NCDs experience by age group	58.72	12	.000
NCDs experience by education level	26.51	12	.009

4.6.2 Association between Demographic Characteristics and CHV Training

As shown in Table 4.5 Row 1, there is no significant association between gender and CHV training, X^2 *(1) = 1.10, p = .294*. CHV training is independent of gender. The second row exhibits that there is no significant association between age group and CHV training, X^2 *(3) = 7.58, p = .056*. There is no sufficient evidence to suggest an association between the age group and CHV training. Further, the third row also reveals that there is no significant association between education level and CHV training, X^2 *(3) = 5.46, p = .141*.

Table 4.17: CHV Training by Demographic Characteristics

	Pearson Chi-square	*df*	*p*
CHV Training by gender	1.10	1	.294
CHV Training by age group	7.58	3	.056
CHV Training by education level	5.46	3	.141

4.6.3 Association between Demographic Characteristics and NCDs Training

As exhibited in Table 4.6 Row 1, there is no significant association between gender and NCDs training, X^2 *(1) = .36, p = .551*. NCDs training is unrelated to gender. The second row shows that there is a significant association between age group and NCDs training, X^2 *(3) = 22.77, p < .001*. There is not enough evidence to evince an association between age group and NCDs

training. The third row reveals that there is a significant association between education level and NCDs training, X^2 *(3) = 10.45, p = .015*. Appendix C gives the cross-tabulations.

Table 4.18: NCDs Training by Demographic Characteristics

	Pearson Chi-square	*df*	*p*
NCDs training by gender	.36	1	.551
NCDs training by age group	22.77	3	.000
NCDs training by education level	10.45	3	.015

4.6.4 Association between Demographic Characteristics and NCDs Knowledge

As shown in Table 4.7 Row 1, there is a significant association between gender and NCDs knowledge, X^2 *(2) = 6.35, p = .551*. NCDs knowledge is not independent of gender. The second row exhibits that there is a significant association between age group and NCDs knowledge, X^2 *(6) = 31.83, p < .001*. The third row reveals that there is no significant association between education level and NCDs knowledge, X^2 *(6) = 10.89, p = .092*. Appendix D shows the cross-tabulations.

Table 4.19: NCDs Knowledge by Demographic Characteristics

	Pearson Chi-square	*df*	*p*
NCDs knowledge by gender	6.35	2	.042
NCDs knowledge by age group	31.83	6	.000
NCDs knowledge by education level	10.89	6	.092

4.7 Reliability Analysis

The questionnaire administered in the present study consisted of three subscales. The skills subscale consisted of 6 items ($\alpha = .849$), the motivation subscale consisted of 5 items ($\alpha = .802$), and the service delivery comprised 4 items ($\alpha = .864$), see Table 4.8. The results reveal

that all the subscales had a Cronbach's Alpha (α) lying between .8 and .9; depicting good internal consistency. The three subscales are reliable (see Appendix E inter-item statistics).

Table 4.20: Reliability Analysis Results

	Number of Items	*Cronbach's Alpha*
Skills	6	.849
Motivation	5	.802
Service delivery	4	.864

Note. N = 131 total observations.

4.7 Regression Analysis

Multiple regression was utilized to examine if skill, motivation, and training significantly predicted the respondents' rating of service delivery. An average of the items for each subscale was computed and used in the regression. Accordingly, gender, age, and education level were included as control variables. Table 4.9 Column 1 (model 1) results show that skill, and motivation explained 46.3% of the total variation in service delivery ($R^2 = .471$, $F\ (2, 126) = 56.14$, $p < .001$). Table 4.9 Column 2 (model 2) results reveal that skill, motivation, and training attributes explained 51.4% of the total variation in service delivery ($R^2 = .514$, $F\ (10, 115) = 12.19$, $p < .001$). Table 4.9 Column 3 (model 3) results exhibit that skill, motivation, training attributes, gender, age, and education level explained 58.2% of the total variation in service delivery ($R^2 = .582$, $F\ (17, 108) = 8.85$, $p < .001$). Based on these results, model 3 is selected as the best model since it has the greatest R square (R^2). It is Model 3 results show that skill has a significant positive effect on service delivery ($\beta = .413$, $p < .01$). On average, every unit increase in skill rating is associated with a .413 unit increase in service delivery rating, all else fixed. Motivation has a significant positive effect on service delivery ($\beta = .459$, $p < .01$). Averagely, every unit increase in motivation rating is associated with a .459 unit increase in service delivery rating, all else constant. Gender has a significant influence on service delivery ($\beta = .308$, $p < .05$). On average, men have significantly higher (by .308)

service delivery than women, all else fixed. Model 3 results also depict that the '31 – 40 years' age category has a significantly higher (by .343) service delivery than the '41 – 50 years' age category, all else constant.

Table 4.21: Regression Analysis

Model	(1)	(2)	(3)
Variable	Service Delivery		
Skill	.439***	.411***	.413***
	(.0926)	(.103)	(.100)
Motivation	.425***	.502***	.459***
	(.0645)	(.0790)	(.0821)
CHV training (=1 if yes else 0)		-.0924	-.196*
		(.274)	(.268)
NCD training (=1 if yes else 0)		-.164	-.288
		(.162)	(.171)
Training frequency (=1 if weekly else 0)		-.421	-.445
		(.318)	(.312)
Training frequency (=1 if monthly else 0)		.249	.304*
		(.182)	(.178)
Training frequency (=1 if annually else 0)		.0876	.0932
		(.211)	(.208)
Training frequency (=1 if after several years else 0)		.102	.000553
		(.212)	(.212)
Content rating (=1 if high else 0)		-.0950	-.101
		(.141)	(.139)
Content rating (=1 if low else 0)		.541*	.366
		(.283)	(.298)
Gender (=1 if male, 0 = female)			.308**
			(.138)
Age category 1 (=1 if 20 – 30 years else 0)			-.235

			(.169)
Age category (=1 if 31 – 40 years else 0)			.343**
			(.157)
Age category (=1 if 51 – 60 years else 0)			-.178
			(.290)
Education level (=1 if primary school else 0)			.133
			(.156)
Education level (=1 if secondary school else 0)			-.172
			(.303)
Education level (=1 if degree else 0)			-.385
			(.325)
Constant	.380	.349	.593
	(.372)	(.501)	(.504)
Observations (N)	129	126	126
F (numerator, denominator)	(2, 126)	(10, 115)	(17, 108)
F statistic	56.14	12.19	8.85
P-value	.000	.000	.000
R square (R^2)	.471	.514	.582
Adjusted R^2	.463	.472	.516

Note. Standard errors are in parentheses. * .1 ** .05 *** p < .01 significance levels. The reference group for the age categories is 41 – 50 years, for education level groups is college diploma, for training frequency groups is 'after several months', and for content rating is 'fair'.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a discussion of the findings, conclusions and recommendations in light of the theoretical framework and conceptual framework as well as the findings of the study. This will be organized in line with the research questions of the study. The chapter also provides recommendations for future studies.

5.2 Discussions

5.2.1: Effect of Skills on Service Delivery

The first objective of the study was to assess the effect of community health volunteers' task shifting skills on service delivery in noncommunicable diseases in the informal urban settlement of Kibera. The regression results show that skill has a significant positive effect on service delivery ($\beta = .413, p < .01$). On average, every unit increase in skill rating is associated with a .413 unit increase in service delivery rating, all other factors remaining constant. In terms of skill rating, the study concludes that the CHVs are well skilled at a rating of a mean of 4.4 translating to 88% which the researcher argues is a good indication that they are able to play their role within the health facilities well. The CHVs rated their communication skills at 87% showing that they are able to engage the community and able to promote behaviour change, which would result in increased in behaviour change. This finding concur with Sou & Beanland (2017) and Garuma & Bitiya (2018) that communication skills are essential for CHVs to model and promote behavioural change in the community members. The counselling skills were rated at 53% for strongly agree and 47% for agree showing that the CHVs are able to create rapport with the community members during counselling sessions.

In addition, the CHVs noted that they have noncommunicable disease handling skills at 84% most of them having gained them through trainings they have attended on handling NCDs and

experience gathered over years. CHVs skills had a mean of 4.0 and a standard deviation of 1.03 showing their capacity to handle NCDs is at an optimal level.

These findings also agree with a study by Kabue, Wandabwa, Kasungami et. al (2018) on coaching CHVs on Integrated Case Management of children under five years in Bondo Kenya found that CHVs who received training in integrated management of childhood illness (IMCI) and reproductive health were more likely to provide recommended services to their clients compared to those who did not receive the training. The study also found that trained CHVs had higher knowledge and skills scores compared to untrained CHVs. Another study conducted in Uganda done by Mercader, Kyomuhangi, Buchner (2017) found that CHVs who received training in integrated community case management (iCCM) of childhood illnesses were more likely to provide correct treatment and counselling to sick children compared to untrained CHVs. The study also found that trained CHVs had higher knowledge and confidence levels compared to untrained CHVs (Mercader et. al, 2017).

Similarly, a study conducted in Zambia found that CHVs who received training in mental health were more likely to identify and manage mental health conditions in their communities compared to untrained CHVs. The study also found that trained CHVs had higher knowledge and confidence levels compared to untrained CHVs (Ndu et. al, 2022). Overall, these studies suggest that task-shifting skills can have a positive impact on service delivery among CHVs, and that training can be an effective strategy for improving the knowledge, skills, and confidence of CHVs in providing healthcare services in their communities.

5.2.2 Effect of Training on Service Delivery

The second objective was to evaluate the effect of training of community health volunteers task shifting on service delivery in noncommunicable diseases in the informal urban settlement of Kibera. Non-communicable diseases (NCDs), such as diabetes, hypertension, and cancer, are a growing public health concern in many countries. Community Health Volunteers (CHVs) can play an important role in addressing the burden of NCDs by providing prevention, screening, and management services in their communities.

This was measured in term of whether the CHVs had been trained on CHVs, the frequency of the training, knowledge of NCDs and training content rating. A great percentage of the respondents (94.7%) had CHV training. Similarly, a large number of the respondents (73.3%) had NCDs training. The training frequency of most respondents (49.6%) was after several months, followed by respondents who trained after several years (18.3%), and respondents who trained monthly (17.6%). Only a small percentage of respondents (3.8%) trained weekly. The regression results show that training has a significant positive effect on service delivery (β = *-.0924, p < .01*).

This study places a strong link between training and service delivery for the CHVs. Since they operate on task shifting, the more their capacity to deliver their capacity is built the more effective in serving the community. The fact that the CHVs noted that training happens after several months and some reported to have received training after several years shows that there is no harmonized training calendar for the CHVs. This is also in line with Vareilles, Pommier, Marchal and Kane (2017;12) who noted that "When few educational opportunities exist, a community based, volunteer-oriented health intervention that provides skill-based and ongoing training, supportive supervision and follow-up and resources adapted to local context and logistical support to perform the work triggered among the CHVs a feeling of their ability to perform the task, a sense of self-efficacy and self-confidence."

The findings of this study differ to those of Tsolekile, Schneider and Puoane (2018) which concluded that CHWs play a wide range of roles that are crucial for managing diabetes and hypertension. However, while training is unstructured and haphazard, basic understanding of diabetes and hypertension remains low. If community based NCD management is to be successful, these need to be improved. Although they argued that further research is necessary to fully understand the potential of peer education as a supplemental mechanism to formal training requirements as well as support and supervision in the workplace, this research found out that training is structured and it has contributed to an improved NCD management. The CHVs in Tsolekile et. al (2018) had little understanding of NCDs while the CHVs engaged in this study are well versed in this area.

5.2.3 Effect of Incentives on Service Delivery

This is the third objective of the study that set to determine the effect of motivation of community health volunteers task shifting on service delivery in noncommunicable diseases in the informal urban settlement of Kibera. Motivation in this case was measured in terms of whether the CHVs enjoy their work, are satisfied with the incentives, whether they are happy to work should there be no monetary gain, appreciated by the community and whether they are appreciated by the government. The regression model showed that motivation has a significant positive effect on service delivery ($\beta = .459,\ p < .01$). Averagely, every unit increase in motivation rating is associated with a .459 unit increase in service delivery rating, all else constant. However, the data showed that, on average and in comparison, to other items within the motivation continuum, the number of CHVs not motivated by incentives and government support are generally lower. Nevertheless, the CHVs are happy that their efforts are recognized by the community, which could also explain other variables that performed relatively well in terms of ratings such as communication and counselling skills.

This is in line with Vareilles et. al (2017) who argued giving CHVs the proper support they need based on fairness and equity causes them to feel valued and appreciated for the work they do, which leads to positive outcomes. These results were influenced by the type of incentives that were or were not tailored to the local cultural, social, and economic context. Incentives does not necessarily need to be monetary but can take other forms such as continuous on the job training, verbal appreciation, enabling environment where they can own and implement decisions, positive work culture among others would serve as incentives.

5.3 Conclusions

5.3.1 Effect of Skills on Task Shifting Skills

The study concluded that skills are critical for better performance of the Community Health Volunteers leads to better outcomes in terms of their service delivery. The statistical analysis showed that skills have a positive significance in relation to service delivery. This is in line with the Ability, Motivation and Opportunity theory, a combination of an individual's independent variables such as their knowledge and skills, competency, motivating factors and

the opportunity given to them have a direct impact on their performance or quality of their work. This theory argues that human resource systems should be targeted towards strategic objectives and influences towards individuals Abilities(A). Among the skills evaluated as part of this study, communication and counselling skills stood out as having more statistical significance and has a direct influence on the rate and quality of service delivery.

5.3.2 Effect of Training on Task Shifting Skills among CHVs

The study also established that training had a positive statistical significance on service delivery for the community members. With over 94% of the CHVs trained, task shifting became a reality and promoted better service delivery. It was noted that further to the CHVs receiving general training on healthcare delivery, about 75% had been trained on NCDs. However, the study noted that the frequency of the training was not consistent with 50% noting that training happens after several months with 19% saying that they receive training after several years. This could be the lot that have an experience of over ten years as CHVs, and in as much as the trend looks that the younger CHVs have been trained more consistently, the training period gap is long.

5.3.3 Effect of Motivation on Service Delivery

In terms of incentives, the study concluded that the CHVs enjoy their work and, therefore, find purpose and motivation to do their work. On the other hand, the study showed that there is a general lack of fulfillment with the incentives that they are given noting that some of them may take quite some time before they receive a pay rise, let alone the amount they are supposed to receive monthly. The study established that since they are not motivated because of monetary support, they are driven by service to the people they live with, making the task shifting model of healthcare, especially for the NCDs, an ideal model for entrenching healthcare services in the community. Furthermore, the CHVs feel recognized and supported by the communities and this also explains why they are motivated to do their work in as much as the responses for working without monetary support present almost a 50/50 rate.

5.4 Recommendations

From the foregoing, and noting the statistical significance of the three variables (skills, training and motivation) on service delivery, the study recommends the following:

5.4.1 Skills

Community Health Volunteers (CHVs) can play a critical role in preventing and managing non-communicable diseases (NCDs) at the community level. To effectively address NCDs, CHVs should have a good understanding of the causes, risk factors, and symptoms of NCDs, as well as their prevention and management strategies. In addition, CHVs should have screening and referral skills and should be able to screen individuals in their communities for NCDs and refer those who require further care to the appropriate healthcare facility. They should be able to promote healthy lifestyles and behaviors that can prevent NCDs, such as healthy eating, physical activity, and tobacco cessation. CHVs should be able to educate patients about their NCDs, including the importance of medication adherence, lifestyle modifications, and regular follow-up care.

In addition to these skills, CHVs should receive ongoing training on the skills and support to ensure that they are up-to-date on the latest information and best practices related to NCDs. They should also be integrated into the broader healthcare system, with clear referral pathways and linkages to healthcare facilities for patients who require more advanced care.

5.4.2 Training

Overall, research suggests that training can have a positive impact on CHVs' ability to provide NCD prevention, screening, and management services in their communities. However, it is important to ensure that training programs are well-designed, adequately resourced, and include ongoing supervision and support for CHVs. Areas of focus should include improved knowledge and skill as studies have shown that training can improve the knowledge and skills of CHVs in NCD prevention, screening, and management. This includes knowledge of risk factors, screening tools, and lifestyle interventions. CHVs who receive training can provide

basic NCD management services, including medication adherence support, lifestyle counselling, and referral to higher-level healthcare facilities.

The government and healthcare implementing partners should intensify training on NCD hard skills. There seems to have been a lot of emphasis on other soft skills such as communication and counselling skills but the NCD skills rated quite poorly, therefore, showing that there is an opportunity to bridge this gap. This will result to an improved NCD management where CHVs who receive training can provide basic NCD management services, including medication adherence support, lifestyle counselling, and referral to higher-level healthcare facilities.

The training schedule should be harmonized through an integrated approach where CHVs can take advantage of online and physical sessions to ensure that they remain updated on caregiving and task shifting. A monthly or bimonthly training would help increase commitment to the training by ensuring that the schedules are predictable but also the CHVs find the trainings useful.

5.4.3 Motivation

In as much as the CHVs are happy to provide support even without monetary support such as increases in their payment or fringe benefits, this study recommends that their source and frequency of income be checked. Part of the reasons why the CHVs do not find government to support them as much as they think it should be because of feeling neglected in this area.

The community has taken ownership of their own health, and this should be a model that should be replicated across other sites. Several studies show that sometimes communities have been resistant owing to the fact that they are dealing with someone they already know and would want to keep their health issues private – which they are entitled to but the community in this study has shown different by embracing the CHVs who live among them therefore making the model and strategy work.

5.5 Suggestions for further studies

Future studies could look into the model of community engagement for CHVs in rural areas especially where the burden of certain diseases such as HIV or certain types of cancer are existent. Further, there are situations where CHVs are paid by the healthcare implementing partners and it would be interesting to see whether their sense of motivation is higher than the ones paid by the government when one considers the monetary incentives and fringe benefits which sometimes implementing health partners, with donor support, are known for.

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APPENDIX I: LETTER OF INTRODUCTION

Strathmore University – Business School

Ole Sangale Road

Madaraka Estate

Nairobi

Dear Participant,

RE: REQUEST FOR PARTICIPATION

I am currently a master student of healthcare management at Strathmore Business school, researching on **task shifting and its implication on service delivery in management of non-communicable diseases.** Kindly assist me fill this questionnaire and we assure you that your responses will be used for academic purposes only and treated with ultimate privacy and confidentiality.

Thanking you in anticipation.

Yours sincerely,

Signed ……

APPENDIX II: INFORMED CONSENT FORM

Strathmore University – business School

Ole Sangale Road

Madaraka Estate

Nairobi.

I am currently a student of MBA Healthcare management in Strathmore University, researching on Task shifting and its implication to deliver quality health services in management of non-communicable diseases. I intend to collect primary data through questionnaires from willing participants. These will be destroyed after the research process is completed. None of the processes of the research will cause you any harm. Anonymity will be ensured as you will not be required to disclose your names at any stage of the interview, nor will your identity be revealed. Participation in this research is voluntary, and confidentiality is maintained throughout the study. Your participation in this study will help to better understand implications of using community health workers in management of non-communicable diseases.

Please, tick ( ) if you accept ( ) or if you do not accept ( ) to be part of this study

Thanking you in anticipation.

Yours sincerely,

……

APPENDIX III: QUESTIONNAIRE FOR CHVs

You are kindly requested to complete the attached questionnaire to enable me

accomplish the study objective. Please, note that all the information given shall be purely used for academic purposes and shall be treated as confidential.

Thank you for taking your time to complete the questionnaire and for your cooperation.

Section A: General Information

1. Nature of the facility you are attached to:

- Public []
- Private []
- Faith-based []
- NGO []

2. Gender of the respondent

- Male [ ]
- Female [ ]

3. Age of the respondent

- 20 to 30 years [ ]
- 31 to 40 years [ ]
- 41 to 50 years [ ]

- 51 to 60 years [ ]
- Above 60 years [ ]

4. Level of education

- Primary school [ ]
- College diploma [ ]
- Degree [ ]
- Masters [ ]

B: Skills

6. To what extent do you agree with the following statement relating to the effect of motivation on the services offered in the management of NCDs in Kibera?

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

Statement	1	2	3	4	5
I am able to communicate well with the community members					
I am able to counsel the community members on non-communicable diseases					
I have the necessary skills to deal with non-communicable diseases in the community					
I try my best to be professional					
I believe I have the social skills to interact with community members in my work					
I feel that I need more training to enhance my skills to deal with non-communicable diseases in the community					

7. Work experience in management of NCDs

0-5years [ ]

6-10years [ ]

11-15years [ ]

16-20years [ ]

21-30years [ ]

>31years [ ]

8. Do you have a supervisor to oversee your work? Yes [ ] NO [ ]

If yes how often are you supervised

i. Once a week [ ]
ii. Monthly [ ]
iii. Quarterly [ ]
iv. Semi- annually

C: Training

9. Have you been given training on your work as a CHV?

Yes [ ] NO [ ]

10. Have you been given training on NCDs?

Yes [ ] NO [ ]

11. If yes, what is the frequency of trainings?

Weekly [ ] Monthly [ ] After several months [ ] Annually [ ] After several years [ ]

12. Hw would you rate the content of trainings?

High [ ] fair [ ] Low [ ]

13. How would you rate your knowledge of NCDS?

High [ ] fair [ ] Low [ ]

D: Motivation

14. To what extent do you agree with the following statement relating to the effect of motivation on the services offered in the management of NCDs in Kibera?

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

Statement	1	2	3	4	5
I enjoy working as a community health worker in Kibera					
I am satisfied with the incentives given to me for performing my duties					
I will be happy to work without any monetary compensation					
I feel appreciated by the community					
I feel appreciated by the government					

E: Service delivery

15. To what extent do you agree with the following statement relating to the effect of motivation on the services offered in the management of NCDs in Kibera?

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

Statement	1	2	3	4	5
The community is now more knowledgeable about NCDs					
The community now has better attitudes towards NCDs					
The community now has adopted better lifestyles to prevent NCDs					
Members of the community come to seek information about NCDs from CHVs					

APPENDIX IV: BUDGET

Item	**Cost (KES)**
Typing of proposal and project	10,000
Printing	3,000
Photocopying questionnaire	3,500
Binding	1,000
Data collection expenses	58,000
Data analysis	35,000
Miscellaneous expenses	11,500
Total	**122,000**

APPENDIX V: WORKPLAN

	2021	2022					
Activity/Time	Jan – Dec	Jan – Feb	Mar	Jun - Jul	Aug	Sept	Oct
Research topic development							
Review of Literature							
Proposal submission							
Ethical review							
Pretesting of research instrument							
Data collection							
Data analysis							
Submission of project report							

APPENDIX VI: INTRODUCTION LETTER

Ole Sangale Rd, Madaraka Estate,
P.O Box 59857 00200, Nairobi, Kenya.
Cell: +254 703 414/6/7, Twitter: @SBSKenya
Email: info@sbs.ac.ke or vist www.sbs.strathmore.edu

Strathmore UNIVERSITY
BUSINESS SCHOOL

28th July 2022

To whom it may concern,

RE: FACILITATION OF RESEARCH – KAREN NAISENYA KIRANKA

This is to introduce Karen Naisenya Kiranka who is a Master of Business Management in Healthcare Management (MBA-HCM) Student at Strathmore University Business School, admission number MBA-HCM 121300. As part of our MBA-HCM Programme, Karen is expected to do applied research and undertake a project. This is in partial fulfilment of the requirements of the MBA-HCM course. To this effect, Karen would like to request for appropriate data from your organization.

Karen is undertaking a research paper on "**TASK SHIFTING AND SERVICE DELIVERY IN INFORMAL SETTLEMENTS: A CASE OF COMMUNITY HEALTH VOLUNTEERS IN KIBRA "** The information obtained shall be treated confidentially and shall be used for academic purposes only.

Our MBA-HCM Programme seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share our findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support and shall be willing to provide any further information if required.

Yours sincerely,

Caroline Tiara.
Manager – Graduate Programs.
Strathmore University Business School.