INFLUENCE OF MULTIPLE-MONTHS-SCRIPTING ON HEALTH CARE WORKERS' PERFORMANCE AT HIV OUTPATIENT CLINICS IN PUBLIC HEALTH FACILITIES IN NAIROBI COUNTY

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DECLARATION

"This Thesis is my original work and has not been presented for a degree or any other award in any other University."

Sign ……………………………………. Date……………………….

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DEDICATION

I dedicate this thesis to my wife and our three lovely children, who made sacrifices and supported me in the journey toward the successful completion of this work. More so, they motivated me every step of the way.

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ABSTRACT

Health care workers shortage is a challenge facing health systems managers worldwide. World Health Organization estimates a projected shortfall of 10 million health workers by 2030. The shortage results in high workload, poor performance, and undesirable patient outcomes. Implementation of World Health Organisation's Multiple-Months-Scripting guidelines was aimed at reducing the number of times a stable HIV patient comes to the clinic for review from monthly to between 3 and 6 months. The broad study objective was to establish the influence of Multiple- Months-Scripting on healthcare worker performance in HIV outpatient clinics. The study's independent variables were health care workers' Multiple Months Scripting guidelines awareness and adaptation, healthcare workers capacity development on Multiple Months Scripting, persons living with HIV' Compliance with Multiple Months Scripting regulations and Multiple Months Scripting Commodities flow. This was a cross-sectional study conducted in 20 public facilities in Nairobi County, Kenya. A key informant tool and a self-administered questionnaire were applied to health facility leadership and technical healthcare worker including doctors, nurses, pharmacists and laboratory technologists. Collected data was entered in the SPSS, for descriptive, bivariate, and ordinal logistic regression analysis. Results showed that out of 128 respondents, 56% were females, 92% were aged between 30-49 years, 89% had served as healthcare workers for 6-15 years, and 53% had served in HIV outpatient clinics for 6-10 years. About 99% of the respondents were aware of and adopted Multiple Months Scripting guidelines; however, only 94% had applied Body Mass Index as a criterion for identifying stable persons living with HIV. About 98% of respondents indicated they were knowledgeable of Multiple Months Scripting guidelines, but 95% agreed they had received supportive supervision, and only 86% had received the Multiple Months Scripting training. About 98 % of respondents said they sensitized persons living with HIV on Multiple Months Scripting; 98% said clients on Multiple Months Scripting adhered to non-medical and medical requirements and maintained a stable state; however, only 93% indicated clients complied with their return dates. A total of 98% of healthcare worker agreed they informed clients on the clinic return dates; however, 48% agreed facilities had commodities stock out within six months prior to the study. Majority of healthcare workers' 98% agreed their performance had improved, agreed there was a reduction in client load and reduced waiting time, and 93% agreed they had more time with clients. Bivariate analysis revealed a significant correlation (0.334) between Multiple Months Scripting guidelines awareness and adaptation and healthcare worker performance and a significant and strong correlation (0.225) between client compliance against and healthcare workers performance. However, healthcare workers' performance had a weak correlation (-0.599) with capacity development on Multiple Months Scripting. There was no significant correlation (0.041) with Multiple Months Scripting commodities flow. Based on ordinal logistic regression, client compliance to Multiple Months Scripting was the most significant influencer of healthcare workers performance, followed by Multiple Months Scripting guidelines awareness and adaptation and finally healthcare workers capacity development on Multiple Months Scripting (Sig. 0.002, .011 and .014 respectively). The conclusion is that implementation of Multiple Months Scripting guidelines resulted in improved healthcare workers performance. It is recommended that the policymakers and HSMs should support Multiple Months Scripting and roll it out to all outpatient clinics for improved patient outcomes.

LIST OF ABBREVIATIONS

ART: Anti-Retroviral Therapy

ARV: Ati-Retro Viral

CASCO: County AIDs STI Coordinator

COVID-19: Corona Virus Disease of 2019

DCM: Differentiated Care Model

HCW: Health Care Workers

HIV/AIDS: Human Immune Deficiency Virus/ Acquired Immune Deficiency

       Syndrome

HRH: Human Resources for Health

KEMU: Kenya Methodist University

MMP: Multiple Months Prescription

MMS: Multiple Months Scripting

NASCOP: National AIDS and STI Control Program

NACOSTI: National Commission for Science, Technology and Innovation

PEPFAR: President's Emergency Plan for AIDS Relief

PLHIV : People Living with HIV

STI: Sexually Transmitted Infections

WHO: World Health Organization

WISN: Workload Indicator for Staffing Norms

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CHAPTER ONE

INTRODUCTION

1.1 Background

Human Resource for Health (Human Resources for Health) is among the six (6) essential pillars of any country's health systems as established by the World Health Organization (Borghi, 2022). The World Health Organization is the global body mandated to set standards and norms for delivering essential health services (Better World Campaign, 2023). The other five health systems pillars include health financing, essential medical products and technologies, health information systems, leadership and governance, and health services delivery (Manyazewal, 2017). All the six health systems pillars are essential as they complement one another towards positive health outcomes.

The Standard set for adequate healthcare workers by the World Health Organization is 22.8 skilled health workers per 10,000 population, and the standard is based on the mean level of physicians, nurses, and midwives observed across countries achieving a skilled birth attendance of 80%. However, in 2016, the WHO revised the healthcare worker standards based on 12 indicators of the Sustainable Development Goals at 44.5 physicians, nurses, and midwives per 10,000 population (Lozano, 2022)

It is estimated that 83 countries are below the World Health Organisation minimum threshold density of 22.8 health professionals (physicians, nurses, and midwives) per 10,000 population; concerning the objective of delivering essential health services of relevance to the Millennium Development Goals, the majority of these countries are in

Africa (Ahmat et al., 2022). In 2020, the global workforce stock was estimated to be 65.1 million health workers, and it was not equitably distributed, with a 6.5-fold difference in density between high-income and low-income countries (Boniol et al., 2022). The World Health Organization estimates a projected shortfall of 10 million health workers by 2030, mostly in low and middle-income countries (World Health Organsiation [WHO], 2023). The African Region has the lowest number of health workers, the lowest density, and the highest disease burden. This high disease burden and the increase in health emergencies have exacerbated the need for qualified health workers in the region (Ahmat et al., 2022)

Investing in the health workforce is critical in Africa, which is plagued by a high disease burden and health workforce challenges that hamper the achievement of national goals and the SDGs (Nyoni et al., 2022). Kenya had a total of 189,932 health workers in 2020, with 66% being in public. The density of doctors, nurses, and clinical officers per 10,000 was 30.14, which represents about 68% of the SDG index threshold of 44.5 doctors, nurses, and midwives per 10,000 population (Okoroafor et al., 2022).

The initial reaction by policymakers and health systems managers to address the health workforce shortage is to hire more workers. Studies findings documented by Gatome and Olalere (2020) reflect that in most developing countries, including Kenya, the health Budgets are usually below what was proposed in the Abuja Declaration at a minimum of 15% of annual health budgets dedicated to the health sector. On the other hand, in most developing countries, Personnel emoluments consume about 60% to 70% of the recurrent health budget. The question among health sector managers is whether

there is financial space to hire more healthcare workers amidst the pressure to reduce the bill.

The Shortage of Health workers is a main obstacle to delivering effective health services, achieving Millennium Development Goals (MDGs), and universal access to HIV services. The shortage leads to stress and an overwhelming workload on healthcare workers (Portoghese, 2014). The consequences of an inadequate healthcare workforce include low access to services by those needing them most and poor quality health services (Dzakula, 2022). A report by Dieleman &Harnmeijer (2006) involving 500 experienced human resources managers revealed that health worker shortage significantly contributes to their poor performance. Ochieng (2023) recorded that poor performance by healthcare workers results from too few staff leads to inaccessibility of care, which thus contributes to poor patient care outcomes.

Given the chronic shortage of healthcare workers in Kenya and constrained financial space to hire more, healthcare managers are left with no option but to explore other approaches that can lead to reduced workload and improved performance if the county is to record positive health outcomes.

To improve the quality of care for persons living with HIV, the World Health Organisation recommended a differentiated care model (DCM) in which various care approaches were tailored for different categories of persons living with HIV for their convenience. As such, there were patient support groups at community and facility levels based on convenience. The DCM also had more extended return periods for a stable patient, referred to as Multiple-Months- Scripting (Multiple Months Scripting),

which allows persons living with HIV time to do their other activities and save on clinic time and money to travel to the facility (Traub et al., 2020). Multiple Month Scripting is a model where stable persons living with HIV are identified using set criteria. Then, they are given longer return dates, three months for medication refills, and six months for clinical review (Mantell et al., 2023). Multiple months of Scripting, according to Ministry of Health [MoH] guidelines (2017), requires stable persons living with HIV only to visit the facility to pick up medication, of which the pharmacy would prepackage the medication, and persons living with HIV would come under the express counter to pick up the medications and return home. Alternatively, they would have support and care group meetings at the facility on given days; one would pick the medication for all, and in the group, the leader would distribute prepackaged medications to respective clients. This way, they would not have to queue at the pharmacy for medication. The other alternative is community care groups, especially for clients who stay far from the facility; one of the group members would visit the facility, collect medication for the rest, and give it out during community care group meetings (MoH, 2017). Effectively, the Multiple Months Scripting approach meant fewer clinic visits by clients, from 12 times a year to just 4 for medication refills and only twice for Clinical review. The reduced visits resulted in fewer clients and a lesser patient load. In essence, implementing Multiple Months Scripting would reduce the workload for the health worker and may have a secondary effect of improved performance and quality of care. Many countries have adopted this approach, with variations to suit country needs. Kenya adopted the DCM approach with its Multiple Months Scripting component and developed the guidelines to guide the practice. There is, however, little evidence to link the implementation of Multiple Months Scripting to healthcare worker performance. Since outpatient clinics have the largest patient load

per day and only serve an estimated 19% of the entire health facility workforce, there is a need to identify ways to ease the workload and improve the health worker-to-patient ratio, especially in outpatient clinics.

1.2 Statement of the Problem

Kenya's health system requires adequate healthcare workers who are equitably distributed and perform at their optimum levels to ensure the country meets sustainable development goals and universal health coverage by 2030. A high-performing workforce ensures quality health care and positive health outcomes for those seeking care at health facilities and the community level.

As of 2022, Kenya had 33 health workers per 10,000 population against a minimum requirement of 44.5 healthcare workers per 10,000, based on the World Health Organization's estimation for attaining SDGs. The problem is that health systems managers are limited by a lack of resources to hire more health workers, given that the country's health workforce wage bill currently stands at 65% of the annual h in the chronic shortage of health workers, especially in the public facilities where the majority of poor Kenyans seek health services. The shortage of health workers means the few available are burdened with a heavy workload, affecting their performance and resulting in poor patient outcomes. Within the health facilities, the outpatient departments carry the heaviest patient load due to high patient turnover, but they need to be more staffed.

The outpatient clinics where HIV clients visit for clinical review and medication refills are equally affected by the high patient workload, affecting standards of care and patient

outcomes. Health systems managers face the problem of inadequate healthcare workers and a lack of resources to hire more, leading to poor client outcomes. There has to be a sustainable alternative that will ensure improved health worker performance, resulting in better patient outcomes. The introduction of a multiple-month scripting approach for stable persons living with HIV at the outpatient clinics, if implemented effectively, has the potential to reduce the number of clients turning up at the HIV clinics. Therefore, the study was to explore the influence of the Multiple Months Scripting model implementation and its influence on healthcare worker performance at outpatient IV clinics.

1.3 Purpose of the Study

The main focus of the study was to establish if the implementation of multiple months Scripting influences healthcare workers' performance at public HIV outpatient clinics in Nairobi County, intending to inform or adjust current practice at outpatient clinics toward improved patient outcomes.

1.4 Objectives

The broad objective was to establish the influence of Multiple Months of Scripting on healthcare workers' performance at Public HIV outpatient clinics in Nairobi County.

The specific objects were ;

i.   To evaluate if healthcare workers' awareness and adaptation of Multiple Months Scripting guidelines influence their performance at public HIV outpatient clinics in Nairobi County

ii.   To establish if healthcare workers' capacity development relating to Multiple Month Scripting does influence their performance at public HIV outpatient clinics in Nairobi County

iii. To evaluate if HIV clients' compliance with Multiple Months Scripting requirements influences healthcare worker's performance at HIV outpatient clinics in Nairobi County

iv.   To determine if commodities flow in line with Multiple Months Scripting guidelines does influence healthcare workers' performance at public HIV outpatient clinics in Nairobi Counties

1.5 Study Questions

i.   How do healthcare workers' awareness and adaptation of Multiple Months Scripting guidelines influence their performance in public HIV outpatient clinics in Nairobi County?

ii.   How does healthcare workers' capacity development on multiple months' scripting influence their performance in public HIV outpatient clinics in Nairobi County?

iii. How does HIV clients' compliance with Multiple Months Scripting requirements influence healthcare workers' performance at HIV outpatient clinics in Nairobi County?

iv.   How do commodities flow in line with Multiple Month Scripting guidelines influence healthcare workers' performance at public HIV outpatient clinics in Nairobi County?

1.6 Study Justification

Very few studies have been conducted on implementing Multiple Months Scripting guidelines in Kenya and how it influences healthcare workers' performance in public outpatient clinics. There is more evidence on how increasing the number of healthcare workers would significantly improve performance. However, more is needed on how adjusting service delivery modalities would improve health workforce performance. This study focused on Multiple Months Scripting implementation. It proved that there was a significant influence on healthcare workers' performance due to the implementation of Multiple Months Scripting at public HIV outpatient clinics. This evidence is needed to inform policymakers and health systems managers of the need to review the current practice of monthly return to clinics for stable persons living with HIV attending outpatient clinics to improve healthcare worker performance and client outcomes.

1.7 Study Significance

The results will benefit stakeholders interested in human resources to improve health systems. The Government of Kenya, especially health systems managers at national and county levels, as the results may impact the current policies, standards, and guidelines. The study results will be helpful to faith-based institutions and private sector health managers since they play a significant part in health services provision and employ a large number of healthcare workers in this country. The study results will be helpful to civil society groups and organizations, especially those with a stake in persons living with HIV representation and health services consumer groups. The study results will be helpful to healthcare workers and persons living with HIV (especially

those attending HIV outpatient clinics in public facilities) as they are direct beneficiaries of recommendations and action that will be taken based on the findings. The study results will interest researchers who may critique the work, identify new areas that need further investigations, and document findings for use by the global health systems community. The study results will interest academicians, students, and health system experts. As a result, this study is very significant to Kenya's health system and other countries in similar situations to Kenya and developed countries interested in strengthening health systems, specifically human resources for health efficiency components.

1.8 Limitations of the Study

The data collection exercise was implemented between June 2021 and April 2022, when public health restrictions related to the COVID-19 pandemic restricted close contact between individuals to minimize the spread of the disease. In compliance with the restrictions, there was to be minimal contact time with the respondents. The study tools were designed to be self-administered; however, there was a brief face-to-face sensitization of the tool to the respondents and a request for consent to participate. The tool was then left with the respondents who had consented to participate and collected later when they had filled them. The tools were subjected to a pretest in Kiambu County in facilities similar to those selected for the study, and any identified challenges, potential misinterpretation, confusion, or ambiguity were corrected before the actual data collection started. During the data collection, the Nairobi Metropolitan Services contract ended; some healthcare workers who had been given the questionnaire to fill out were rendered jobless and, hence, did not come to the facility and failed to fill out their questionnaire. Hence, the response rate was affected, but efforts were made to

ensure that the rest who had not been affected filled out the questionnaire through regular calls and reminders.

1.9 Delimitation

This study aimed to determine the influence of Multiple Month's Scripting on Health Care Workers' performance in HIV public outpatient clinics. Some physicians practice Multiple Months Scripting for persons living with HIV in outpatient chronic care. However, the study narrowed down on HIV public outpatient clinics due to the increased attention given to Multiple Months Scripting following the introduction of the differentiated care approach for stable persons living with HIV. The study focused on the guidelines, healthcare workers' capacity development on Multiple Months Scripting, client compliance to Multiple Months Scripting, and commodities flow for HIV public outpatient clinics, even though other services are provided at public outpatient clinics. The clients focused on were only those who were HIV positive, determined to be stable, and already enrolled in the Multiple Months Scripting program in public HIV outpatient clinics in Nairobi County. This approach allowed the study to focus and draw specific conclusions based on the selected persons living with HIV. Sampled respondents were included in the study based on the stipulated sampling procedure and inclusion criteria. During the study implementation, there were time-to-time public health restrictions related to the COVID-19 pandemic. Before the tools were subjected to the data collection, they were subjected to a pretest where any challenges, information misinterpretation, or confusion were corrected.

1.10 Assumptions

The study assumptions were that ;- the tool was accurate and effective in capturing all necessary information to make generalization in the findings of the study; respondents were truthful and provide unbiased feedback to ensure validity and reliability of the study findings; ethical and research issues were adhered to and that no one was injured or come across harm in what so ever based on implementation of study tools; Weather and environmental conditions were conducive to undertake the study fully and successfully within the desired timeline and resources; Political environment and campaigns did not interfere with the data collection and analysis for this study or cause biases is response to set questions; The public health advisory relating to COVID 19 restricted close contact that made it challenging to obtain data in a reasonable and timely manner, however the study questionnaire was designed to be a self-reported tool with a brief initial face to face sensitization of the respondents to the tool.

1.11 Operational Definition of Terms

Client compliance with Multiple Months Scripting It is expected that clients and persons living with HIV should follow the prescribed and dispensed regimen as intended by the prescriber (Panesar, 2012). In this study, client compliance with Multiple Months Scripting and perceptions of healthcare worker performance was assessed through the healthcare worker tool and focus group discussions, and the findings were applied to complement healthcare worker responses regarding the quality of care. The information gathered was part of the dependent variable details.

Commodity Flow   Refers to ensuring medications come into a facility on time and in quantities, such as to ensure they are available for clients' consumption and without excess or in lower quantities as to be out of stock. In this study, the commodity flow was taken as that which ensures the availability of ARVs for persons living with HIV on Multiple Months Scripting to ensure there is no stock out or expiry at any time. There is a need for a change in commodities quantification and dispensing modalities to ensure clients on three three-month or six-month Scripting can take away adequate medications to last them till their next appointment date. Sometimes, it calls for expedited release of commodities from the pharmacy since they are not coming for clinical review but just to pick commodities/medicines that are already prescribed. In this study, commodity flow was of interest as one of the independent variables.

Differentiated Care Model (DCM):   It is a client-centered approach that has been adopted for HIV services and is tailored to the preferences and expectations of various groups of people living with HIV (PLHIV) to reduce burdens on the health system (International Aids Society[IAS], 2016) and ensure clients' compliance to Multiple Months Scripting and adherence to services. This study studied components of the DCM model under the various independent variables.

Healthcare Workers.	Refers to trained persons who provide health services to pateints or clients at a health facility, community or household (for the purpose of this study persons living with HIV). The healthcare workers are of various cadres based on her speciality. In this study healthcare workers included cadres of Doctors, Nurses, Clinical Officers, Laboratory and Pharmacy staff.
Healthcare Workers' Performance	It depends on healthcare workers' availability, clinical competence, responsiveness, and productivity (Alexander, 2018; World Health Organisation[WHO],2006). For this study, healthcare workers included doctors, clinical officers, nurses, pharmacy staff, and laboratory staff whose performance was assessed based on factors that improve their outputs, including lowered workload, increased duration with persons living with HIV, reduced work-related burnout, clients' knowledge of what is to be achieved (capacity) and availability of commodities (ARVs). The healthcare workers' performance was a dependent variable.
Healthcare Worker Density	Refers to the number of healthcare workers per 10,000 population in a defined geographical region such as a country. The World Health Organization set the standard for healthcare workers' density to be 22.8 healthcare workers (doctors, nurses, and midwives) per 10,000 population at a minimum in

order to meet the Millennium Development Goals (MGD). The standard was reviewed to 44.5 health care workers to 10,000 population at a minimum to meet the Sustainable Development Goals (SDG). Hence, various literature will refer to the standard based on either MDG or SDG targets.

HIV outpatient clinic
Refers to a facility where persons diagnosed with HIV and have or do not have AIDs condition are attended to so that their condition is monitored and they are provided with various types of therapy to ensure they are stable. The outpatient in contrast with inpatients, the persons seeking for healthcare services are not admitted, they are treated and released to go back home.

Multiple Months Scripting
Refers to facility-based management of persons living with HIV, where the clinician determines to script longer-duration medications based on assessing a client's stability. The client may be given prescriptions for three to six months of medications compared to one month's duration (International Centre For Aids Care And Treatment Program [ICAP], 2019). The client is then provided medications to last, say, one to three months at the pharmacy, depending on the stock levels, without necessarily having to be reviewed by the clinicians until the next appointment date. The persons living with HIV are also provided with express services at the pharmacy where their medications are prepackaged, and they need not queue once they go to the health facility to pick up refills.

Multiple Months Scripting Guidelines	Refers to the Government of Kenya guidelines on Multiple Months Scripting for stable HIV clients as recommended in the Differentiated Care Management (DCM) guidelines (MoH, 2017). The Multiple Months Scripting guidelines' availability, awareness, and compliance were applied in this study as part of facility and healthcare workers' compliance with the policies and guidelines for Multiple Months Scripting implementation.
Patients Load	Refers to the number of persons living with HIV who visited a health facility or were treated in any given period as defined by National Cancer Institutie Thesaurus (National Cancer Institute [NCI], 2021). In this study, it was the number of persons living with HIV or clients who visited a health facility in a given month. Patient load was studied as part of the dependent variable.
Persons Living with HIV	These are persons /people who have been diagnosed with HIV. They may or may not have AIDs and may or may not be hospitalized; hence, it is not appropriate to use the term patient. The goal of the health care system, health systems managers, and health care workers is to ensure that persons living with HIV get to a stable state and maintain it for the rest of their lives.

Stable HIV Patients	In this study, these are persons living with HIV who met specified criteria set in the World Health Organisation guidelines (WHO, 2016a) that is, they should have received ARTs for at least one year; had no adverse drug reactions; had no current illnesses or pregnancy; if the female is not currently breastfeeding; those with a good understanding of lifelong adherence and had evidence of treatment success in the form of two consecutive viral load measurements below 1000 copies/mL). Rising CD4 or CD4 counts >200 cells/mm3 are rising without viral load monitoring.
Speed Counters	These refer to the particular pharmacy counters that are set apart in a health facility to attend to people living with HIV and are in the Multiple Months Scripting program. The special pharmacy counters usually have medications (ARVs) prepackaged, and once the person living with HIV comes to the clinic, they do not have to queue to receive their medication. The speed counters ensure they spend very little time at the facility, hence the term speed countiers.
Workload	It is defined as the amount of work one is expected to perform in a given time (Oxford University, 2021). This study referred to the number of clients a health worker attended monthly. The workload was part of the dependent study.

CHAPTER TWO

LITERATURE REVIEW

2. 1 Introduction

This section is on what is documented regarding the study, more so the study variables of Multiple Months Scripting guidelines awareness and adaptation, health care workers' capacity development on Multiple Months Scripting, persons living with HIV compliance on Multiple Months Scripting, commodities flow, and Health Care workers' performance. The chapter reflects the global picture and narrows down to the Kenyan contexts regarding the variables of interest.

2.2 Human Resources for Health

The World Health Organization formulated a health systems framework that described six building blocks, including Health workforce, leadership and governance, service delivery, medical products, vaccines and technologies, and health information systems (Manyazewal, 2017). The human resources for health (HRH) system is focused on health workforce management and development. It includes a range of occupations that aim to promote or improve human health towards the attainment of the United Nations' Sustainable Development Goals (SDGs) and achieving policy priorities such as universal health coverage (Lozano, 2022). One of the most significant challenges for health systems managers globally is the Healthcare workers shortage; according to the (WHO, 2023), there is a projected shortfall of 10 million health workers by 2030, mainly in low and lower-middle-income countries. Kenya has a low density of doctors, nurses, and clinical officers of 30.1/10000 against the Sustainable Development Goals (SDG) threshold index of 44.5 /10000 (Okoroafor et al., 2022). The shortage of

healthcare workers in Kenya varies from county to county and in urban versus rural facilities (Masibo et al., 2018; Nyawira et al., 2022).

Healthcare worker shortage results in a High workload, especially noted in public health facilities, and it has been documented that it leads to poor performance and undesired patient outcomes (Campbell et al., 2013;Deussom et al., 2022). The World Health Organization (WHO) and technical partners developed the Human Resources for Health Action Framework in 2005, which is used to guide the situation analysis or planning process at the country level by drawing the attention of stakeholders to the prerequisites for effective reconstruction and the development of an HRH system (Fort et al., 2015; Fujita et al., 2011). The World Health Organization's Human Resources for Health Conceptual framework has various components that work together to lead to a healthy population, namely financing, Policy, leadership and governance, Partnerships, and education (Management Sciences for Health [MSH], 2009). See Figure 2.3 in section 2.8 for further illustration.

Efforts by policymakers and health systems managers to address the health workforce shortage are usually focused on hiring more health workers to bridge the existing gaps. The desire to hire more health workers has various challenges, including a lack of qualified personnel to take up the positions in some of the specialist cadres, and the other challenge is the need for more resources to hire more workers, especially in low-income countries like Kenya. It is documented that in most low-income countries, close to 70% of the recurrent budget is utilized for personnel emoluments (Gatome, 2020). The Kenya Health workforce status report by the MoH (2015) estimated that the proportion of people who seek outpatient services is 87.3%. However, only 19% of the

health workforce serves in primary care (outpatient) clinics, according to the Kenya Health Human Resources Strategy 2014-2018 (Government of Kenya [GoK], 2014). There is a need, therefore to explore approaches that would help ease the heavy workload on healthcare workers and more so in the outpatient clinics.

2.3. Multiple Months Scripting Guidelines Awareness and Adaptation

Health services are implemented within set standards, along with specific scientifically proven guidelines and protocols. The health systems and health facility manager's role is to ensure the facility meets the set standards of practice at all times. Multiple Months Scripting is an approach where stable persons living with HIV are required to attend HIV clinics once every three months for medication refills and Once every six months for clinical review, and these guidelines are part of the Differentiated Care Model approach as documented by the joint United Nations Program on HIV/AIDS [UNAIDS], (2022).

The WHO (2021) recommend early initiation of persons living with HIV on anti-retroviral therapy irrespective of their clinical or immunological status, known as the test-and-start approach. Due to the rapidly growing number of HIV-infected individuals, initiating treatment led to practical challenges in health systems, including congestion, long waiting times for persons living with HIV, and limited time to provide quality services to persons living with HIV, therefore, to address the new challenge, the differentiated care model was introduced (WHO, 2016b).

The differentiated Care Model has been widely proposed as the primary framework to expand access and quality of care and treatment while meeting the unique needs of the varying people living with HIV populations (Alamo et al., 2013;Grimsrud, 2017;). The differentiated care model is based on the recognition that persons living with HIV require different degrees of engagement with clinical teams and includes few clinic visits, task shifting, multiple months scripting, community or facility adherence groups, and community anti-retroviral distribution groups (Hagey, 2018;Prust et al., 2017;).The differentiated care model, as described by the IAS (2020), is a person living with an HIV-centered approach that simplifies and adapts HIV services to reflect the preferences and expectations of various groups of people living with HIV while reducing unnecessary burdens to the health system. The Differentiated Care Model approach was designed upon the realization that each of the 37 million People living with HIV may not all be served efficiently by a one-size-fits-all care model. The Kenya National AIDS & STI Control Program (NASCOP) developed the 2017 Differentiated Care: Operational Guide (MoH 2017), which provided for care under the Differentiated Care Model that is focused on the specific needs of groups of persons living with HIV in terms of i) clinical characteristics, ii) subpopulations or iii) context. The persons living with HIV are categorized after 12 months of care and treatment, and their care is packaged for those who are stable or for those who are not stable. The Differentiated Care Model should be aligned to respond to specific challenges of the person living with HIV to improve the quality of care, outcomes, and the person living with HIV satisfaction.

The person living with an HIV-centered approach can be defined based on when, where, who, and what, as illustrated in Figure 2.1 on the building blocks of the Differentiated Care Model approach.

Figure 2.1

The building blocks of the Differentiated Care approach
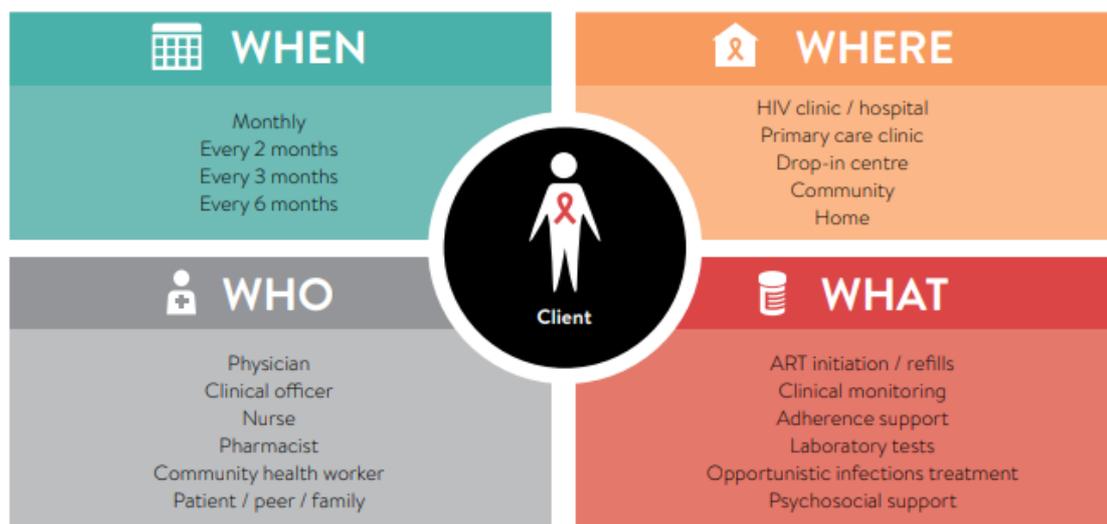
Source,(IAS, 2020)

When referring to when a person living with HIV should be seen in the clinic, unstable persons living with HIV are seen monthly, while stable persons living with HIV are seen every two months, 3 months, or six months based on their condition or clinic protocol. Refers to the site where the differentiated care occurs, either in a hospital, primary care clinic, community, or home. **Who** refers to the persons engaged in care from physicians, clinical officers, Nurses, Pharmacists, Community Health care workers, or persons living with HIV and family members. **What** refers to the activities engaged, including ART initiation, Clinical Monitoring Adherence support, Laboratory tests, treatment of infections, and psychological care and support?

The differentiated care model lays a fertile ground for multiple months scripting, which effectively allows physicians to prescribe medication for over 3-to six months, and the person living with HIV can only come to the facility for a refill or receive three to six months of commodities based on the availability of commodities and country-specific applicable policy. Multiple months of dispensing require three months of medication dispensed to the person living with HIV and six months of the clinical review return date, hence eliminating the monthly clinic visits (Traub et al., 2020). ICAP (2020) documented in their stories from the field that Multiple Months Scripting had reduced the number of visits to outpatient HIV clinics for stable persons living with HIV from 12 times a year to only two. In essence, if an outpatient clinic has 500 stable persons living with HIV, it would reduce the patient turnover from 6,000 (500 x 12 months if they came monthly) per year to 1000 (500 patients x 2 if they are under six months multiple moths scripting), in other words, the clinic 500 person living with HIVs turning up months would have a monthly turnover of 500 person living with HIVs while the one with 500 persons living with HIV on six months multiple moths scripting will have 84 (1000 divided by 12 months) assuming the person living with HIVs come to clinic in a evenly distributed way throughout the year.

Effective implementation of the multiple months scripting guidelines lines requires the healthcare workers to be provided with and appropriately sensitized on the guidelines in order to adopt them and apply in practice. The design of this study had a sub-objective dedicated to establishing that healthcare workers are made aware of and apply the Multiple Months Scripting guidelines. This is a sixfold reduction in patient turnover, hence the need to establish if the multiple months' scripting is being implemented as it should and the influence that implementation has on healthcare worker performance.

2.4. Healthcare Workers Capacity Development on Multiple Months Scripting

The health sector is changing, especially regarding technology, new emerging diseases, and approaches to patient care. As a result, whereas preservice education is essential for healthcare workers' skills acquisition, Nicol et al. (2019) documented that they require in-service training and supportive supervision to manage their person living with HIV effectively. Study findings documented by Ramkrishna (2022) reveal that there is a positive relationship between training effectiveness and employee performance; however, the regression analysis revealed that organizational culture is the dominant factor in the relationship between training effectiveness and employee performance. In the event that the organization's culture is perceived as non-supportive, training of health workers would not necessarily result in improved performance.

Various approaches and multiple techniques that allow interactions with learners and applying learned skills effectively improve healthcare worker's performance. Training healthcare workers in settings similar to the workplace and the use of practical techniques has improved Knowledge, skills acquisition performance, and clinical outcomes (Bluestone, 2013). A study conducted in Uganda revealed that barriers to effective differentiated care service delivery and effective multiple months scripting ART dispensing included insufficient mentoring of healthcare workers and weak supply chains(Zakumumpa,2020). Given that Multiple Months Scripting is a relatively new approach to HIV patient care, health healthcare workers' training, orientation, mentorship, and supportive supervision should be emphasized by all health systems managers and facilities in charge.

2.5 Person Living with HIV Compliance with Multiple Months Scripting Requirements

The person living with HIV behavior significantly influences the success of any therapy based on how well they are prepared to handle their condition and compliance with care and treatment. Treatment compliance is the degree to which the patient conforms to medical advice about lifestyle and dietary changes, as well as keeping appointments for follow-up and taking treatment as prescribed (Ross, 2019).

HIV is a chronic condition where persons living with HIV must take medication for life; compliance with Multiple Months Scripting is paramount. The success of anti-retroviral therapy will depend on the person living with HIV compliance with care and treatment. A cross-sectional study by Fernandez-Lazaro et al. (2019), conducted among 299 patients with chronic conditions and prescribed medication in primary healthcare centers, showed that only 55% of the patients adhered to medications. Any health systems manager desires to see much higher compliance rates.

The WHO (2019) defines a Stable Person living with HIV who should be enrolled for multiple months of scripting at a health facility. The primary intention is to retain the stable person living with HIV in care and sustain a low viral load, with a secondary outcome of viral suppression 12 months after enrollment. It was documented by Hoffman (2017) that in Zambia, a country with lower -middle income and high prevalence of HIVAIDs cases, the monthly dispensing and clinical reviews were a burden to persons living with HIV; hence, the need for longer ART dispensing intervals

to reduce the number of times an HIV/AID patient visits a clinic in a year. Additionally, it is documented that persons living with HIV on a 6-monthly appointment were less likely than those on a monthly schedule to have gaps in medication refills. Potential benefits of multi-month dispensing may include improved adherence to ART, improved retention in care, and decongestion of clinics, which allows staff to focus on the sick, allows the clinic to initiate more new persons living with HIV on ART, improves operational efficiency at clinics, and reduces costs of providing and obtaining ART. During the COVID-19 outbreak, it was recommended that people stay at home and exercise social distancing, especially those with co-morbidities.

These restrictions favored persons living with HIV on multi-month scripting who turned up to the facility at intervals of between 3-6 months as recommended by the government guidelines (MoH,2017) and reduced congestion at the pharmacy (Daley,2020). As a result, the approach not only ensures that persons living with HIV benefit from reduced visits to the clinic but also prevents them from contracting COVID-19. Significantly, it has been documented that Multiple Months Scripting improves adherence and viral suppression among people living with HIV, improving the immune system that mitigates the risk of severe COVID-19 (Traub et al., 2020 June 30). Multiple Months Scripting has also been documented as a critical strategy to safeguard persons living with HIV and healthcare workers providing HIV services, potentially saving persons living with HIV from the dual threat of SARS-CoV-2 and HIV (Traub et al., 2020).

There is documentation in a study involving 6 African countries that youth on ART who transitioned to Multiple Months Scripting maintained favorable outcomes in terms of retention, adherence, immunosuppression, and viral suppression (Kim,2018). The reflection is that youths can do well with less frequent clinic visits, especially given that most are in schools and colleges where they board and hence take long durations to visit clinics.

This study was designed to evaluate if the person living with HIV on Multiple Months Scripting is complying with the requirements as prescribed in the guidelines by the World Health Organization and the Government of Kenya.

2.6 Commodities Flow at HIV Outpatient Clinics

The success of Multiple Months Scripting approaches heavily depends on, among others, the availability of Anti-retroviral commodities for the person living with HIV. In compliance with three months' refill return dates, the client has to take home anti-retroviral medicines three times the amount they used to take for monthly return dates. It is the responsibility of the health systems managers to ensure the supply chain system is efficient to provide the ati-retroviral commodities for multiple-month scripting purposes. Those who take three months doses have to carry adequate supplies home, and if not well managed, this could lead to both wastage and collapse of the Multiple Months Scripting approach.

Implementing Multiple Months Scripting is more effective in countries supported by PEPFAR and those in the developing world than in the developed world. It has also

been documented that 63% of the studied countries implemented three months of multiple months' scripting, and 23% implemented six months of multiple months' scripting (Pebody, 2020; Daley, 2020). South Africa has guidelines to implement three months of Multiple Months Scripting; however, due to challenges with its supply chain, the practice has been adjusted to two months of Multiple Months Scripting (Pebody, 2020). As a result, the challenge of supply chain systems must be addressed, and as countries shift towards 3 or 6 Multiple Months Scripting, they ought to be prepared to ensure commodity security and consistency. Supply chain systems weaknesses in low-income countries remain a significant challenge to implementation over multiple months. Study findings in Ethiopia by Berhanemeskel (2016) recorded that a lack of proper patient records and commodities forecasting has led to frequent stockouts of Anti-retroviral commodities. Similar findings were recorded by Damtie (2020), where unsatisfactory data records, stockouts, interrupted reports, inaccurate inventory, and wastage rates were indicators for defective supply chain management of HIV/AIDS commodities. The facility commodity storage is critical to ensure efficient commodities flow for multiple months scripting. Multiple months scripting requirements include the presence of fast track refill or speed pharmacy at the health facility, where Ant-retroviral commodities are prepackaged, and a specific pharmacy window to facilitate fast dispensing. Prust (2017) documented the significance of fast-track refills for efficient commodities access by persons living with HIV and are on multiple months of scripting.

This study sought to establish if the facility commodities flow was adequate for the implementation of multiple months scripting to persons living with HIV and attending outpatient clinics.

2.7 Healthcare Care Workers Performance

The factors associated with health worker performance assessed in this study include reduced healthcare workers' workload, time spent with persons living with HIV, persons living with HIV waiting time, standard of care, and responsiveness of the healthcare workers to patient's needs.

2.7.1 Reduced Workload,

A study by Portoghese (2014) indicated that the higher the healthcare workers' workload, the higher the exhaustion, as reflected in Figure 2.2. An exhausted healthcare worker will not be able to perform effectively, hence may lead to poor persons living with HIV outcomes. In another study by Rusnock (2017), he documented a linear relationship between patient load and healthcare workers' workload, with those who had more workload experiencing more mental burnout. Burnout is likely to cause healthcare workers' performance to be low, resulting in poor patient outcomes. William (2007) documented that health worker workloads, stress, and satisfaction significantly impact patient care quality and individual performance, absenteeism, and turnover.

Figure 2.2

Health Care Workers workload and exhaustion relationship
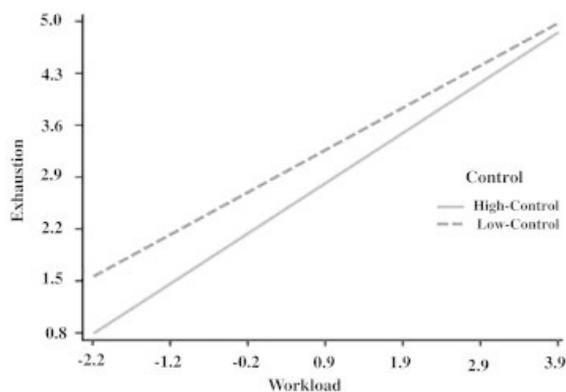
2.7.2 person living with HIV Time with Health Care Worker

The amount of time that healthcare workers spend with a person living with HIV is bound to influence their performance and, hence, quality of care. Aron (2019) documented that health outcomes improved when health workers were more compassionate and spent more time with persons living with HIV, hence lowering burnout. It is also documented by Westbrook (2011) that the time health workers spend with persons living with HIV is associated with improved patient outcomes, reduced errors, and also contributes to patient and nurse satisfaction. Healthcare workers' norms of standard are usually based on activity to be performed in a given time; hence, time is a critical factor in healthcare workers' performance and patient outcomes.

2.7.3 person living with HIV waiting time

The person living with HIV waiting time is another factor that has an impact on healthcare workers' performance and the person living with HIV. A study in Nigeria by Olowookere (2012) concluded that although the majority of PLHIV were satisfied with their medical care, they needed patient waiting time to be reduced. In Malaysia, Pillay (2011) documented that persons living with HIV can wait for more than two hours from registration to getting the prescription slip; however, the actual contact time with a health worker is about 15 minutes. Heavy workload is indicated as one of the contributors to lengthy waiting times and short duration between a person living with HIV and healthcare worker contact time (Pillay,2011).

2.7.4 standard of care,

The ultimate desired quality of care for HIV /AIDs outpatient clinics is patient retention in care and viral suppression. Long et al. (2020), in a study in sub-Saharan Africa, concluded that retention and viral suppression were higher for persons living with HIV on a differentiated care model than for conventional care persons living with HIV. The ultimate measure of healthcare workers' performance is an improved standard of care, which is anticipated to have better care outcomes.

2.7.5 Responsiveness

Proactive and timely responsiveness of health workers to patient needs, as documented by Wallace (2020), could result in improved patient safety, satisfaction, and better health outcomes. In addition, a responsive health worker is perceived by persons living with HIV to be a better performer.

2.8 Human Resources Health Conceptual Framework

The Human Resources for Health conceptual framework, as presented in Figure 2.3, illustrates the various health systems components that work together to improve the health workforce performance and health services outcomes. The concept identifies five key components (Policy, Financing, Education, partnership, and leadership) that work together to impact Human Resources for Health management systems (Fort, 2015). The five HRH framework interventions have to take place based on situational analysis, planning, implementation, monitoring, and evaluation. The concept assumes that the mentioned ingredients, combined with other systems components and country-specific context, including labor markets, together contribute to an improved health workforce. Improved health workforce in the environment of other systems

components (health commodities, health information systems, health financing, health leadership, and governance, as well as quality service systems) and country-specific labor markets result in health service equity, effectiveness, efficiency, and quality and ultimately better health outcome. The concept is straightforward: an improved workforce is a function of various interacting components (Fort, 2015). The HRH Action Framework is designed to support governments and health managers in developing and implementing strategies to achieve an effective and sustainable health workforce. By using a comprehensive approach, the framework will support countries in addressing staff shortages, uneven staff distribution, gaps in skills and competencies, low retention, and poor motivation, among other challenges (WHO, 2023).

Figure 2.3

Human Resources for Health Action Framework
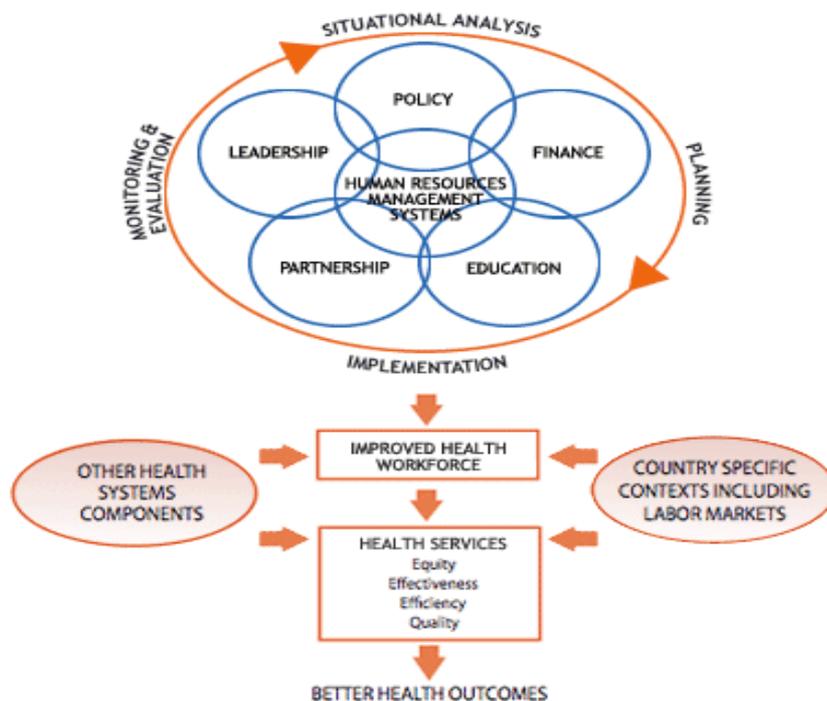
Source: Global Health Workforce Alliance, USAID, WHO n.d. *(WHO, 2023)*

2.9 Study Conceptual Framework

The study's conceptual framework looks into various aspects of Multiple Months Scripting implementation and how they contribute to health workforce performance improvement. The four independent variables for this study include 1) Healthcare care workers' awareness and adaptation of the Multiple Months Scripting guidelines, which is aligned to the policy component of the Human Resources for Health conceptual framework; 2) Health care workers' capacity development on Multiple Months Scripting guidelines and this can be aligned to the education component of the Human Resources for Health conceptual framework, 3) persons living with HIV compliance to Multiple Months Scripting requirements which aligns to partnerships and leadership aspects of the Human Resources for Health conceptual framework and 4) Multiple Months Scripting commodities flow which for purposes of this study was aligned to availability of resources in the Human Resources for Health Conceptual Framework. The components of the conceptual framework are seen to influence the health workforce performance, which aligns with the improved Health workforce, as illustrated in Figure 2.9.

Figure 2.4

Study Conceptual Framework

INDEPENDENT VARIABLES

DEPENDENT

VARIABLE

**Multiple Months Scripting
Guidelines Awareness and
Adaptation**
-the existence of guidelines
-Knowledge of content
-practice of the guidelines

**Healthcare workers Capacity
Development on** Multiple Months
Scripting

- Orientation on Multiple Months
Scripting
- On-Job-Training
- Support Supervision

**A person living with HIV
Compliance with Multiple Months
Scripting Requirements**

-Timely visits to clinics
- Retention rates
- Proportion of stable persons living
with HIV over time

**Commodities flow aligned to
Multiple Months Scripting
guidelines**
-Stock out rates
-Person living with HIV's flow
-Storage of commodities
-Speed counter for Multiple Months
Scripting person living with HIVs

Healthcare workers Performance

-Reduced workload,

-person living with HIV time with

healthcare workers,

-Person living with HIV waiting time

-Standard of care,

-Responsiveness

The Conceptual Framework Indicators of Interest were measured as Follows.

2.9.1 Multiple Months Scripting Guidelines Awareness and Adaptation: The

county records were reviewed to assess the number of facilities in the county that offer

HIV services and the proportion of these facilities that have institutionalized Multiple

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Months Scripting guidelines. Further discussion with the county HIV coordinator was done to establish reasons that contribute to the awareness and adaptation of the guidelines by the facilities within the county.

2.9.2 Healthcare Workers Capacity Development on Multiple Months Scripting: The proportion of healthcare workers who serve in the HIV outpatient clinic who have undergone the standard Multiple Months Scripting training was established. This information was obtained from the Key informants, including the county HIV coordinator, the facility in charge, and health care workers themselves.

2.9.3 Persons living with HIV Compliance with Multiple Months Scripting: The healthcare workers and Key informants were asked to describe their views and observations with regard to the person living with HIV's compliance with Multiple Months Scripting requirements.

2.9.4 Multiple Months Scripting commodities flow: The healthcare worker and Key Informants were asked to describe the various aspects of Multiple Months Scripting commodities flow at the facility, including the quantification, person living with HIV return dates, and availability of speed counters for Multiple Months Scripting person living with HIVs, commodities storage, and stockouts**.**

CHAPTER THREE

RESEARCH METHODS

3. 1 Introduction

This section describes methods and approaches applied for respondent selection, data collection tools, data collection approaches, data analysis, and report writing.

3. 2 Research Philosophy

This study set to establish if implementation of Multiple Months Scripting as described in the Ministry of Health Guidelines would influence health care workers' performance at the public HIV outpatient clinics in Nairobi County. This approach could lead to a change in the process, which traditionally has been that to improve health worker performance through lowered workload is to hire more staff. However, in this case, we can see that focusing on service delivery adjustments would still result in reduced workload and improved performance. The findings will be recommended to governments and health systems managers to consider, especially for persons living with HIV attending outpatient clinics, where there is a considerable patient turnover, yet very few health workers are allocated to these clinics. The study design ensured that appropriate methodology was applied, as data collection and analysis using descriptive and inferential statistics was done to ensure the findings were sound and reliable. The questionnaire had questions based on experiences, observations, and opinions, a combination that helped elicit an in-depth understanding of the study questions and, hence, quality outcomes and recommendations.

3.3 Research Design

The study design was cross-sectional, focusing on the influence of Multiple Months Scripting on Health Care Workers' performance at public HIV clinics in Nairobi

County. Data was collected at a particular point in time by use of tools administered to health care workers and key informants' discussions.

3.4 Study Population

The study population included healthcare workers who worked at the HIV outpatient clinics in public facilities (as outlined in the facility selection section). The primary respondents were health workers (Doctors, Clinical officers, Nurses, Laboratory staff, and Pharmacists) who primarily interact with the persons living with HIV at the HIV outpatient clinics and would be directly impacted by any significant shifts caused by Multiple Months Scripting implementation. Based on the data in the Human Resources Information Systems (iHRIS) as of April 2021, there was an estimated cumulative total of 40,297 Doctors, Clinical officers, Nurses, Pharmacy, and Laboratory staff in Kenya, of which 2250 (6%) were in Nairobi County. Out of the 2250 health workers in Nairobi County, 718 worked in the outpatient HIV clinics. Hence, 718 healthcare workers were taken to be the study population. The study's Key Informants were made up of the Nairobi county HIV and STD coordinator and the health facility HIV outpatient clinic in charge of the selected facilities.

3.5 Sampling Procedure

3.5.1 Geographical Distribution

Nairobi County was selected for this study since it is the county with the most significant proportion (70%) of clients on Multiple Months Scripting based on MoH's District Health Information Systems (GoK, 2021). The facilities were spread across Nairobi County and included county referral facilities, sub-county facilities, health centers, and dispensaries.

3.5.2 Facilities Size Determination and Selection:

The facilities included in the study were Nairobi County public facilities with an HIV outpatient clinic that were implementing Multiple Months Scripting. The other consideration was that the facility had to have a high number of Persons living with HIV recruited into the Multiple Months Scripting if we were to demonstrate an impact on workforce performance. The stable Persons living with HIV are selected and recruited into Multiple Months Scripting gradually. Hence, in a facility, some would have return dates of less than three months, others three to five months, and others will have up to the optimum six months. For this study, the facilities with more than 900 persons living with HIV on Multiple Months Scripting for between 3 and 6 months were included. Based on the data available in the PEPFAR DATIM system as of December 2022, a total of 20 public facilities in Nairobi County met the set criteria and were included in the study. The table in table 3.1. Illustrates

Table 3.1

Nairobi County Public Facilities with over 800 Scripting's person living with HIV on

Multiple Months Scripting

N0.	MFL code	Facility Name	Number of persons living with HIV on 3-6 months Multiple Months Scriptings
1	12871	Kenyatta National Hospital	9,201
2	19958	Mbagathi District Hospital	4,619
3	12870	Riruta Health Centre	3,384
4	12874	Baraka Dispensary	3,034
5	12879	Mama Lucy Kibaki Hospital-Embakasi	2,719
6	20106	Pumwani Maternity Hospital	2,684
7	18805	Mathare North Health Center	2,165
8	12887	Kangemi Health Center	2,099
9	12913	Dandora II Health Centre	1,786
10	13015	Karen Health Centre	1,368
11	20393	Makadara Health Center	1,692
12	17723	Langata Health Centre	1,174
13	21146	Embakasi Health Centre	1,432
14	21215	Westlands Health Centre	1,327
15	13220	Kariobangi Health Centre	1,213
16	13169	Kasarani Health Centre	1,176
17	18887	Umoja Health Centre	1,039
18	12973	Pumwani Majengo Dispensary	1,167
19	20078	Mathari Hospital	1,172
20	12950	Dandora I Health Centre	942
		Total clients on 3-6 months Multiple Months Scripting	45,393

*MFL –Master Facility List – Code

*Source: , (2021c) District Health Information Systems (DHIS 2) – through DATIM system October 2021.

3.5.3 Healthcare Workers Sample Size Determination

A multi-stage sampling method was applied to obtain the respondent's sample size. The

primary respondents were Healthcare workers within the 20 facilities with the highest

number of clients on Multiple Months Scripting. The healthcare workers selected for the study included Doctors, Clinical Officers, Nurses, and Laboratory and Pharmacy staff who work in the public outpatient HIV outpatient clinics in Nairobi. These are the cadres that interact with the persons living with HIV directly. Hence, their performance would be impacted by any shifts in client load as a result of Multiple Months Scripting Implementation. According to Ministry of Health data in the integrated Human Resource Information Systems (GoK,2021a), the national number of health workers in the selected cadres in Nairobi County was 2,250. Out of 2,250, it is estimated that 718 of them provide services at the HIV outpatient clinics—GoK (2021b) data in the Integrated Human Resources for Health (iHRIS). Hence, the study population was 718 doctors, nurses, clinical officers, and the laboratory and pharmacy staff.

3.5.4 Sample Size Calculation

Note: The Kenya Health Human Resources Strategy 2014-2018 indicated that 19.8% of all Health care workers worked in primary care facilities (GoK, 2014). Applying the population size of 718 healthcare workers, with an estimated 19.8% working at Primary care facilities, which are mainly outpatient facilities, a confidence level of 95%, and a 5% margin of error, the statistical formula given below generated a sample size of 182 health care workers.

Fischer's formula (University of Nairobi [UoN], 2021) was used to determine the number of the target respondents.

$$n = Z^2 P(1-P)/ I^2$$

In which;

n is the sample size

Z is a normal deviation at the desired confidence interval. In this case, it was taken at 95%, Z-value at 95% is 1.96

P is the proportion of the population with the desired characteristic; for this study, healthcare workers working in outpatient clinics, estimated at 19.8%

Q is the proportion of the population without the desired characteristic (in this case, the health care workers not working at outpatient clinics).

I^2 is the degree of precision; it was taken to be 5%

Hence:

$$n = 1.96^2 \text{ X } 0.198 \, (0.802) / \, 0.0025$$

$$= 244 \text{ Health care workers}$$

Since the Healthcare workers' population in Nairobi County is less than 10,000, the sample adjustment was done using the following formula.

nf=n/ [1+(n/N)]

Where:

nf is The desired sample size for a population that is less than 10,000

n is the calculated sample size. In this case, 244 Health Care Workers

N is the total population, i.e., 718 healthcare workers in HIV outpatient clinics in Nairobi County

Hence n = 244 / [1+ 244/718]

$$= 182 \text{ Health care workers}$$

The estimated numbers sampled for each of the cadres, namely doctors, nurses, clinical officers, laboratory, and pharmacy staff, were obtained from the integrated Human Resources for Health Information Systems (GoK, 2021). The proportions for each of

the cadres were applied based on the national figures and applied to the calculated sample size of 182 healthcare workers. Table 3.2 illustrates.

Table 3.2

Estimated healthcare workers population in public facilities and sample size by cadre

Cadre	Clinical Officers	Medical Laboratory Scientists	Doctors	Nurses	Pharmacy Staff	Total
Healthcare workers Nationally	5716	3501	2996	26085	1999	40297
Healthcare workers in Nairobi HIV outpatient clinics	102	62	53	465	36	718
Sample size	8	16	14	118	9	182

Note:

*Source: integrated Human Resources for Health Information System (GoK, 2022)

3.5.4 Key Informants Sampling

Key informants included:

a. The Nairobi County HIV and Sexual Transmitted Infections Coordinator (CASCO) was targeted for the study, and a key informant interview tool was administered.

b. Each public facility in the study, totaling 20, had an in-charge who was approached and recruited to participate in the Key informant interviews. They were informed and requested to provide consent to participate.

3.5.5 Inclusion and Exclusion Criteria

I) Inclusion Criteria

• Facilities implementing Multiple Months Scripting in the last 12 months

- Healthcare workers who were providing health services at the HIV outpatient clinic in Nairobi County

- Healthcare workers, namely doctors, clinical officers, nurses, laboratory and pharmacy staff.

- Respondents who provide informed and voluntary consent

- Targeted Healthcare workers present at the facility on the day of data collection

- Patients attending HIV outpatient Clinics who were on Multiple Months Scripting

- Facility in charge of the outpatient clinic, the selected facilities where the study was carried out

II) Exclusion Criteria

- Facilities that were not implementing Multiple Months Scripting were excluded from the study, as well as facilities that had a low number of persons living with HIV on Multiple Months Scripting (less than 1000 persons living with HIV on Multiple Months Scripting) and facilities that had implemented Multiple Months Scripting for less than 12 months.

- Healthcare workers who did not fall within the cadres considered for this study,

- Additionally, targeted participants who failed to provide consent for

- participation in the study was omitted.

3.6 Instrumentation

3.6.1 Key Informants Interview Tool (Appendix 3)

A key informant interview tool was developed to elicit feedback from the health facility managers and Nairbi County's CASCO. The instrument was administered to the

respective respondents, and their statements were recorded. Content of the Key Informant Interview tool included the facility's adaptation and institutionalization of Multiple Months Scripting guidelines, healthcare workers and patient preparation for Multiple Months Scripting, Pharmacy adjustments for Multiple Months Scripting commodities flow, and Perceived changes in healthcare workers' performance since the commencement of Multiple Months Scripting.

3.6.2 Healthcare Workers Self-administered Questionnaire (Appendix 2)

A questionnaire with open-ended questions and a Likert scale of five was developed to solicit information from healthcare workers. Due to COVID-19 concerns and restrictions at the time of data collection, the tool was introduced to the respondents, and it was left with them to respond to the questions, then picked later. The desire was to minimize the contact time between the researcher and healthcare worker and also allow them to have the flexibility of filling the tool at their convenience due to work demands at the health facilities.

The content of this tool included healthcare workers' bio-information, Multiple Months Scripting guidelines awareness and adaptation, healthcare workers' training and skills development on Multiple Months Scripting, Client's compliance to Multiple Months Scripting, Multiple Months Scripting commodities' flow, and lastly, healthcare workers' performance during Multiple Months Scripting implementation. The healthcare worker questionnaire was pretested among 30 healthcare workers in public facilities within Kiambu County, which were similar to those targeted for the actual study in Nairobi County. The observations that arose from the pretest process were used to adjust the actual tool.

3.6.3 Informed consent (appendix 1)

An informed voluntary consent form was developed and applied during the data collection process to ensure that only informed and willing respondents participated in the study. Respondents were informed of the tool's safety and participation in the research and that they were free not to respond to the questions or (in the case of Key Informants) withdraw from the interview at any one time during the interview process. The respondents were informed that withdrawal from participation would not result in unfair treatment. Respondents were also informed that the data, analysis, and report would be published and that the report would be used to inform the policy-making process and health system management.

3.7 Methods of data collection

The research and ethics consent to conduct the study were sought from the Kenya Methodist University's Scientific Research and Ethics Committee (Reference number: KeMU/SERC/HSM/8/2022), the National Commission for Science, Technology, and Innovation (Reference Number:837419), and Nairobi Metropolitan Services (Reference number: EOP/NMS/HS/187) in appendix 4 and respondents informed consent appendix 1. Nairobi facilities are managed from sub-counties and regions. Hence, the various regional managers were visited and provided access to facilities without which the facility in charge would not have allowed data to be collected.

3.7.1 Pretest

The study tools were pretested among 30 healthcare workers in Kiambu County's public facilities that were similar to those that were targeted for the study in Nairobi County. Then, the tool was adjusted based on the pretest findings, recommendations by

the respondents, and observations made by the researcher. Results and data from the pretest were subjected to Cronbach's Coefficients analysis to establish the reliability level of the tool.

3.7.2 Study Tools Implementation

From the list of the sampled facilities, the management was contacted both through the phone and followed up physically to obtain their authorization to conduct the data collection among the healthcare workers in outpatient HIV clinics. Once the consent, the relevant consent, and approval were obtained, the healthcare workers were sensitized to the data collection tool by the researcher, and then the tool was left with them to complete and collect once they had finished filling the tool. There was regular follow-up communication with the facility in charge so as to answer any arising questions and also inform when the tools were to be picked up. Each completed questionnaire was coded for ease of identification, and data was entered into the statistical application called SPSS. The SPSS application helped with data organization, storage, and both descriptive and inferential statistical analysis.

3.8 Operational definition of variables

This study focused on the influence of independent variables on dependent variables. Independent variables happening together were assumed to influence healthcare worker performance.

3.8.1   Independent Variables

For this study, there were four independent variables, namely healthcare workers' awareness and adaptation of multiple months scripting guidelines, healthcare workers' capacity development on multiple months scripting, healthcare workers' capacity

development on multiple months scripting, and commodities flow in alignment with multiple months scripting.

3.8.1.1 Healthcare workers Awareness and Adaptation of Multiple Months Scripting Guidelines

The study aimed to establish the level of healthcare workers' awareness and adaptation of the multiple months' scripting guidelines. The focus was to confirm if the facility had the guidelines in place either in hard or electronic copies and that they were easily accessible by healthcare workers for reference. Secondarily, the study aimed at establishing if the health care workers were applying the guidelines as they should, and this was done by asking questions regarding the criteria they used to show if persons living with HIV attending their clinics were stable for inclusion to the Multiple Monhs Scripting program.

3.8.1.2 Healthcare Workers Capacity Development on Multiple Months Scripting

For this study, this variable was assessed by asking the healthcare workers (on a Likert scale of 1-5) whether or not they have received training, mentorship, or supportive supervision on Multiple Months Scripting. Another question was to establish the healthcare workers' perceived level of knowledge on Multiple Months Scripting. A third question was if they felt they were practicing multiple months' scripting as prescribed in the guidelines.

3.8.1.3 Persons Living with HIV Compliance with Multiple Months Scripting

Success of treatment outcomes is dependent on various patient factors, including compliance to clinical advice, medication and non-medical requirements. This Study aimed at identifying if the Patient living with HIV comply to instructions by health care workers, maintenance of stable state, and

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suppressed viral load as observed by the respondents. These observations were then analyze to determine if they influence healthcare worker behavior change.

3.8.1.4 Commodities Flow in Alignment with Multiple Months Scripting

For this study, this variable was measured by asking about stock-out rates of HIV commodities in the facility, prepackaging for Multiple Months Scripting clients, and if the facility has a particular window (express window) in the pharmacy for speed dispensing to persons living with HIV on Multiple Months Scripting.

3.7.2. Dependent Variable

The dependent or outcome variable for this study is healthcare workers' improved performance. It is not easy to measure performance by itself; however, factors associated with good healthcare worker performance were measured, including reduced workload over time and the duration of time that a health worker spends with persons living with HIV at the clinic. Healthcare workers were asked to estimate the time duration spent with persons living with HIV and if, in their estimation, this has improved over time. Healthcare workers observed viral load levels and suppression rates for those on multiple months scripting. It was estimated that these questions would provide adequate information to asses if the performance of healthcare workers had improved since the implementation of multiple months scripting was started. Table 3.3 illustrates.

Table 3.3

Data Analysis Model

Variables		Indicator	Measure	Results
Independent variables	Multiple Months Scripting Guidelines Awareness and adaptation	Availability and application	Likert scale 1-5	Collapsed into two: Disagree and Agree
		Healthcare workers knowledge	Likert scale 1-5	
	Healthcare workers' capacity development on Multiple Months Scripting	Trained	1-5 Likert scale	
		Skills	Likert Scale 1-5	
		Implementation	Likert scale 1-5	
	Persons living with HIV' compliance with Multiple Months Scripting	Return date compliance rate	Likert scale 1-5	
		Multiple Months Scripting Retention trends	Likert scale 1-5	
	Commodities Flow	Stock out rates (In the last six months)	Likert scale 1-5	
		Commodities prepackaging (For one month, three months, or six months)	Likert scale 1-5	
		Client convenience (Express/group picking/ other)	Likert scale 1-5	
	Bivariate and ordinal regression analysis was applied to establish a correlation between the independent and dependent variables.			
Dependent Variables	Healthcare workers performance	Workload	Likert scale 1-5	
		Time with Client	Likert scale 1-5	
		Standard of care	Likert scale 1-5	
		Viral load	Likert scale 1-5	

3.9 Methods of Data Analysis

3.9.1 Data Analysis Model

Each of the independent variables was measured using various indicators that were then tested for connection to the dependent variable. See Table 3.8.

3.9.2 Data Analysis

The data collected were entered into SPSS software, which is a statistical application that was used for analysis and presentation purposes. The data from the pretest was subjected to Cronbach's Coefficients to determine tool reliability. Descriptive methods of data presentation, including frequency tables and graphs, were applied. Then, inferential statistics, both bivariate analysis and ordinal logistical regressions, were used to establish the relationship between variables. Based on the findings, this report was written describing the findings, conclusions, and recommendations. The regression model below was used:

$$\mathrm{logit}(P(Y \leq J)) \text{ equals } \beta J0 + \beta 1 X 1 + \beta 2 X 2 + \beta 3 X 3 + \beta 4 X 4$$

For J equals 1…J-1; P - Predictors. Due to the parallel lines assumption, the intercepts are different for each category, but the slopes are constant across categories

Y = Healthcare workers' performance at public HIV outpatient clinics

X_1 = Multiple Months Scripting guidelines awareness and adaptation

X_2= Healthcare workers' capacity development on Multiple Months Scripting

X_3 = Client compliance with Multiple Months Scripting practices

X_4 = Commodities flow in line with Multiple Months Scripting guidelines

While β_1, β_2, β_3 and β_4 were coefficients of determination

3. 9.3 Likert Scale Application

The study questionnaire had a Likert scale of 1 to 5, where 1 denoted strongly disagree and 5 denoted strongly agree. The responses were collapsed into a two-point scale where 1-3 were grouped as disagreed, and 4 & 5 were combined as agreed. The decision to collapse the scales from 5 to 2 was informed by the fact that some of the cells had no responses, which made it challenging to analyze; hence, the decision to collapse them was made for purposes of meaningful analysis. It is documented that where the 5 scale tool has consistent non-response in some scales and in the event where collapsing these scales will not change the meaning, then the scales can be collapsed from 5 to 2 scales (Dusen B. & Nisen J., 2019). The respondents were requested to indicate their level of agreement with the statements as related to the influence of Multiple Months Scripting guidelines awareness and adaptation and implementation in the performance of healthcare workers in HIV public outpatient clinics in Nairobi.

3.10 Ethical Considerations

The proposal was presented to the Kenya Methodist University's Scientific Research and Ethics Committee (Reference number: KeMU/SERC/HSM/8/2022) appendix 4, National Commission for Science, Technology and Innovation (Reference Number: 837419) appendix 4, and Nairobi Metropolitan Services (Reference number: EOP/NMS/HS/187) appendix 4, to safeguard the integrity of the study and ensure the protection of the respondents, as well as the principal researcher. Voluntary and informed consent was sought from the targeted respondents, and they were also

required to fill out a signed consent form (Appendix 1). The principal investigator and any other persons who handled the data were expected to sign a non-disclosure form. The questionnaire was coded and hence did not need to bear respondents' names or any other personally identifiable information (Appendix 2). The data collection, reporting, literature search, and quotation ensured adherence to the non-plagiarism requirements. A plagiarism report was obtained and indicated that the tool was within acceptable standards.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The study aimed to establish the effect of multiple-months-scripting on healthcare workers' performance at HIV outpatient clinics in public health facilities in Nairobi, Kenya.

4.2 Reliability Test Results

There was a tool pretest by 30 respondents drawn from the neighboring Kiambu County to test the reliability of the tools as they closely match the health dynamics existing in Nairobi County. The internal consistency of the tool was determined using Cronbach's alpha methods. The findings are illustrated in Table 4.1.

Table 4.1

Summarized Cronbach's Coefficients

Study Variable	Cronbach's Alpha	Number of Items	Conclusion
Multiple Months Scripting guidelines awareness and adaptation	0.771	8	scale reliable
Healthcare workers capacity development on Multiple Months of Scripting	0.769	9	scale reliable
Client compliance with Multiple Months Scripting practices	0.794	10	scale reliable
Commodities flow in line with Multiple Months Scripting guidelines	0.749	9	scale reliable
Healthcare workers performance at public HIV outpatient clinics	0.757	9	Scale reliable
Overall	0.768	45	Tool was reliable

As illustrated in the table, the five items had an alpha coefficient of 0.768, which explains that the items had a high internal consistency; hence, the tool was good since any reliability coefficient above .70 is taken as sufficient for analysis and reporting .

4.3 Response Rate

The sample size was 182 respondents who worked in the HIV outpatient clinics in the public facilities HIV outpatient clinics in Nairobi. Based on 182 questionnaires administered, 128 responses were complete, contributing to a 70.3% response rate. The results are illustrated in table 4.2.

Table 4.2

Response Rate

Questionnaires status	Frequency	Percentage
Completed questionnaires	128	70.3
Uncompleted questionnaires	54	29.7
Total	182	100.0

These results are similar to what was documented by Burns et al. (2008) in their publication titled " *A Guide for the Design and Conduct of Self-Administered Survey of Clinicians*," that response rates of at least 70% are desirable for external validity of the study results. However, response rates between 60% and 70% may be acceptable. Christensen et al. (2014) reported a response rate of 62% in a health survey that applied a self-administered questionnaire.

4.4 Demographic Information

The study aimed to establish the demographic background of the respondents to ascertain their eligibility to take part in the study. The results show that females

represented the majority of the respondents, 72 (56%), and the majority, 118 (92%) of the respondents were between 30–49 years old. The majority of the respondents, 113(88%), had served as healthcare workersfor 6- 15, while 68 (54%) of the respondents had served in the HIV outpatient department for 6-15 years. The findings reflect that the majority of the respondents, 116 (91%), were trained up to diploma level, and 10 (8%) were first-degree holders. The respondent's professional cadres included 44(35%) Nurses; 37(29%) laboratory personnel; 28(22%) clinical officers; 17(13%) pharmacists while 2(1%) doctors. The findings reflect a mature and experienced workforce with the right professional qualifications and skills mix. Table 4.3 illustrates the findings.

Table 4.3

Demographic Characteristics Information

Gender	Frequency	Percent
Male	56	44
Female	72	56
Total	128	100
Age bracket	**Frequency**	**Percent**
18-29 years	10	8
30-39 years	87	68
40-49 years	31	24
Total	128	100
Level of Education	**Frequency**	**Percent**
Diploma	116	91
Graduate (Degree)	10	8
Postgraduate	2	1
Total	128	100
Training Area/Cadre	**Frequency**	**Percent**
Nurse	44	35
Clinical Officer	28	22
Pharmacist	17	13
Laboratory Personnel	37	29
Doctor	2	1
Total	128	100
Years of service as healthcare workers	**Frequency**	**Percent**
1- 5	15	11
6- 10	70	55
11-15	43	34
Total	128	100
Years working at HIV outpatient clinic	**Frequency**	**Percent**
1- 5	58	45
6- 10	67	53
11-15	3	2
Total	128	100

The socio-demographic findings revealed an experienced and mature workforce. The study finding in terms of gender proportions, age, and years of experience are consistent with findings on health workforce market analysis documented by Okaroafor et al. (2022). Nearly all healthcare workers reported that they were aware and had adapted the Multiple Months Scriting guidelines in Nairobi County. Similar findings on healthcare workers application of the criteria for identification of stable clients were

document in a study in Ethiopia by ICAP (2019) and in another study in Malawi by Prust et al. (2017). There is need for health systems managers to support effective roll out of established guidelines and specifically application of Body Mass Index as a criteria to determine stable clients for MMS enrolment need to be emphasized.

4.5 Multiple Months Scripting Guidelines Awareness and Adaptation

The results of the questions asked to the health care workers regarding their awareness and adaptation of the Multiple Months Scripting guidelines revealed that 99% agreed they were aware of the guidelines, and 98% agreed they always refer to the guidelines while providing services to clients. About 98% of the healthcare workersagreed they sensitize the clients on their 3-month medication refill and 6-month clinical review return dates. About adaptation of the criteria to determine stable clients to be put on Multiple Months Scripting, 99 % agreed they use the viral load results, while 98 % agreed they applied the criteria of the patient being on ART for 12 months and criteria of the patient not having infections (including T.B.) for 6 months. However, only 94% of the respondents agreed that they apply Body Mass Index criteria for determining a stable patient. The results are illustrated in Table 4.4.

Table 4.4

Multiple Months Scripting Guidelines awareness and adaptation

Questionnaire Statement	Disagree n (%)	Agree n(%)
I am aware of the Government of Kenya guidelines on Multiple Months Scripting	1(1)	127(99)
My most recent Viral load is < 1,000 copies/ml to determine if a client is stable	1(1)	127(99)
Stable persons living with HIV are sensitized about ART refills and requested to come back in 3 months for a refill	2(2)	126(98)
I check if a client has been on an ART regimen for more than 12 months to determine if they are stable	2(2)	126(98)
I give stable persons living with HIV 6 month appointments for a full clinical review appointment	2(2)	126(98)
I often refer to the Multiple Months Scripting guidelines in delivering services to clients	2(2)	126(98)
I establish if a client has not had active Opportunistic Infections (including T.B.) in the previous six months to determine if they are stable	2(2)	126(98)
I find out the client's Body Mass Index (BMI is above 18)to determine if they are stable	8(6)	120(94)

During the Key Informant Interview one of the respondets stted that,

> "…*the healthcare worker trainings on Multiple Months Scripting are organized on a need basis and are done especially during continuous medical education (CME) sessions and quarterly supportive supervision exercises…"*
> *(KII #1, Male)*

> *"the Multiple Months Scripting guidelines are available in the facility in hardcopies and in some cases in soft copies and staff use them"*
> *(KII #2,#3 and #4,, females)*

The study findings with regard to healthcare worker's knowledge and practice reflect that they were fully aware of the guidelines on Multiple Months Scripting as stipulated in the NASCOP Operational Guidelines (MoH, 2017). The guidelines define who is a stable patient and the duration a client on Multiple Months Scripting should take before going for a medication refill and clinical review, which is what the respondents indicated to be their regular practice. The Multiple Months Scripting Model is part of the Differentiated care model (IAS, 2020), which is client-centered, reflecting the preferences and expectations of various groups of people living with HIV conditions. Most of the healthcare workers in this study were aware of the Multiple Months Scripting. They applied it as required, including three months of medication refill and six months of the clinical review return date, hence eliminating the monthly clinic visits. The findings are similar to those recorded by Traub et al. (2020). Majority of the respondents indicated the regular mentorship and OJT received helped improve their responsiveness to clients' needs and they they were knowledgeable on quality and need to maintain standards for Multile Months Scripting. These findings compare with findings in Uganda in which insufficient training was identified as a barrier to implementation of Multile Months Scripting implementation (Zakumumpa et al., 2020). Regular in-service training and supportive supervision is required to maintain HCWs competence (Nicol et al., 2019) additionally it is documented that multiple training techniques that allow for interactions with learners and application of learned skills are effective in improving HCWs performance (Bluestone et al., 2013).

4.6 Health Care Workers Capacity Development on Multiple Months Scripting

The results reflect that the majority, 125(98%) of the respondents, agreed they had received capacity development interventions and were knowledgeable on quality

management to maintain high standards of care for persons living with HIV on Multiple Months Scripting. About 122(96%) of the respondents were in agreement that the training and mentorship they received had helped improve their responsiveness to persons living with HIV at the Outpatient clinic. However, only 122 (95 %) and 120 (94 %) agreed they received supportive supervision and on-the-job training, respectively. A relatively smaller proportion agreed they received training on Multiple Months Scripting records and guidelines based on the set Multiple Months Scripting curriculum. These findings are illustrated in Figure 4.1.

The Key Informant Interview with the health facility in-charges had some of them stating that

> *"... staff is updated on Multiple Months Scripting through external training from the county," on-job training," and "during supportive supervision...."*
> (KII 01, Male)
> *" ...we conduct quetely audits and do quarterly supportive supervision…"*
> *(KII# 04,Female)*

Figure 4.1

Health Care Workers Capacity development on Multiple Months Scripting
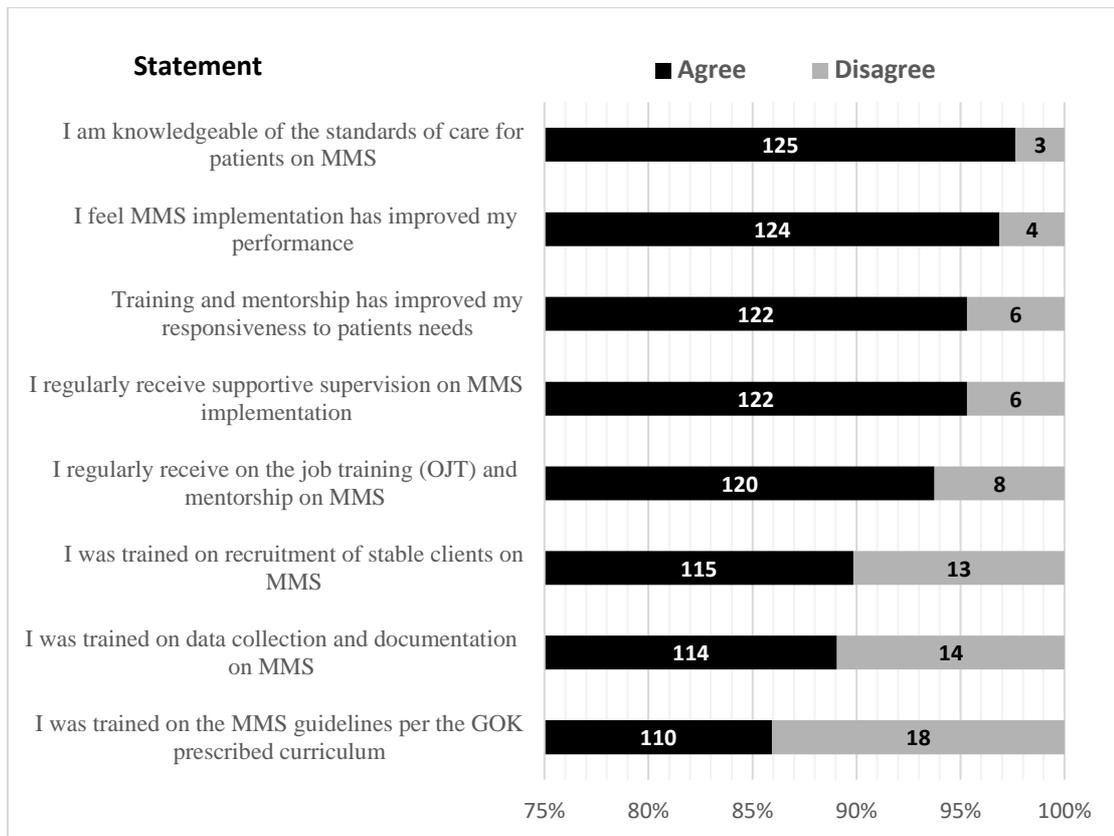
The findings imply that despite the high number of healthcare workersvwho were knowledgeable about the Multiple Months Scripting implementation, relatively fewer of them received on-the-job training and mentorship. However, fewer of them had received training based on a set curriculum. The findings illustrate that the healthcare workers were trained, mentored, and supervised on Multiple Months Scripting. The results are similar to the study by Nicol (2019), which concluded that whereas preservice education impacts healthcare workers with requisite skills, regular in-service training and supportive supervision are required to maintain their competence levels in client care. Additionally, Bluestone (2013) documented that multiple training techniques are more effective in improving the capacity of healthcare workers and that

they allow more interactions with learners as they apply learned skills and hence are effective in improving healthcare workers' performance. A multi-stakeholder study conducted in Uganda revealed that barriers to effective multiple months dispensing included insufficient training of healthcare workers (Zakumumpa, 2020). Hence, building the healthcare workers' capacity on Multiple Months Scripting and supportive supervision is essential in ensuring their performance is improved.

4.7 Persons Living With HIV Compliance With Multiple Months Scripting Requirements

The findings revealed that the majority of healthcare workers, 126 (98%), agreed that they do sensitize clients on Multiple Months Scripting based on Government of Kenya guidelines. Based on the sensitization, 126 (98%) of the respondents agreed that clients on Multiple Months Scripting complied with non-medication instructions (such as nutrition, hygiene, and self-care), and 124 (94%) agreed that persons living with HIV on Multiple Months Scripting adhered to their medications and were likely to be retained on care. A total of 122 (95%) agreed that persons living with HIV on Multiple Months Scripting were more likely to maintain a stable state than those not on Multiple Months Scripting. However, a relatively lower proportion of the healthcare workers, 121 (94%) and 118 (92%), felt persons living with HIV were likely to return for their 6-month clinical review and 3-month refill dates, respectively. Figure 4.2 illustrates the findings.

The following are excerpts from key informants:

> *"... persons living with HIV are provided with health education through critical messaging sessions" and by "the clinicians during the clinical review..."*

"... a recent analysis by county and NASCOP has shown an improvement in retention of Multiple Months Scripting persons living with HIV in care..."

(KII #5and# 8 females)

Some health facility in charges had the following to say:

"... a large majority of persons living with HIV are compliant with the Multiple Months Scripting guidelines..."

"... patient's education is done during visits to the clinics" and that "persons living with HIV are counseled to adhere to medications...."

"... there was a dedicated healthcare worker who calls persons living with HIV in advance to remind them of their TCA (time to come again) ..."

(KII #4, #5, # 8 Female)

The KII stated the following with regard to challenges of the Multiple Months Scripting implementation;

"...clients forget their return dates due to the long durations in between and it is difficult to monitor changes in persons living with HIV stability due to the long return dates,"

"...persons living with HIV may not come to clinics for other conditions monitoring such as diabetes and hypertension since they wait for the Multiple Months Scripting return dates..."

(KII # 8 and # 11, Females)

Figure 4.2

Persons Living With HIV Compliance with Requirements for the Multiple Months Scripting Program
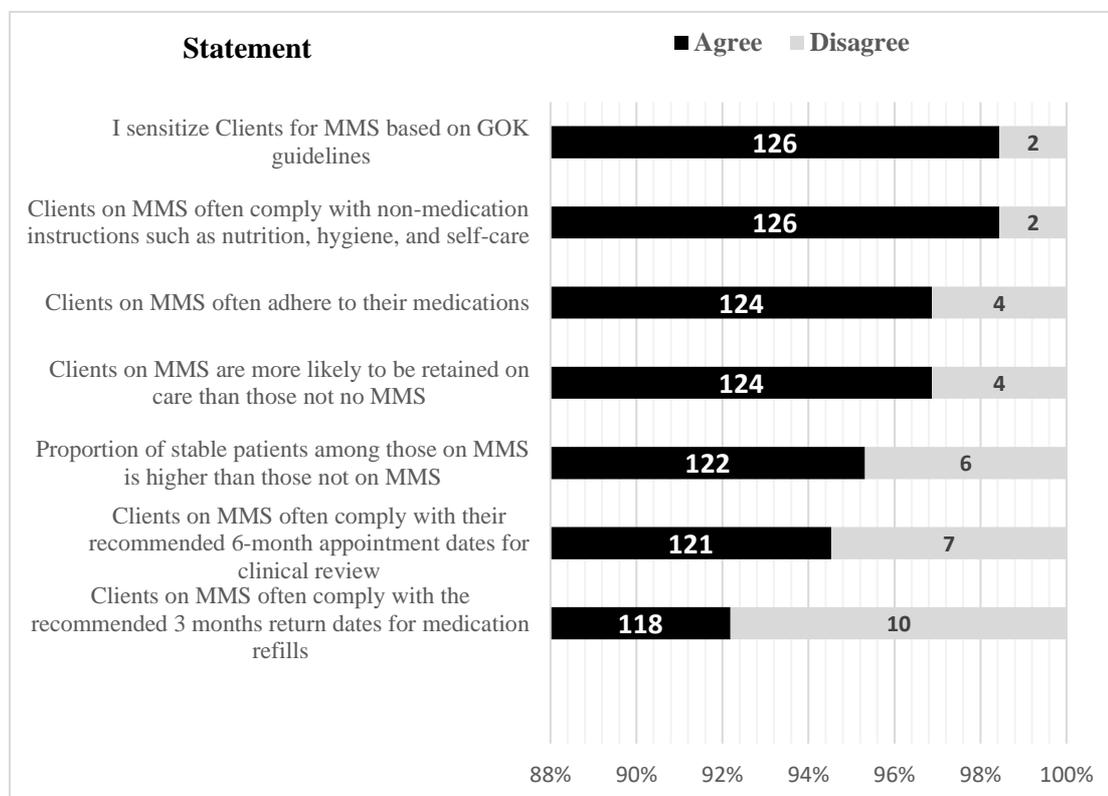
These results revealed that stable persons living with HIV on Multiple Months Scripting are likely to comply with adherence to care and treatment. These results are consistent with the findings of an observational analysis in Zambia by Hoffman (2017) that persons living with HIV on Multiple Months Scripting were less likely than those on a monthly schedule to have gaps in medication refills or be lost to follow-up. Additionally, Hoffman documented that potential benefits of multi-month dispensing may include improved adherence to ART, improved retention in care, and decongestion of clinics, which allows staff to focus on the sick, allows the clinic to initiate more new persons living with HIV on ART, improves operational efficiency at clinics, and reduces costs of providing and obtaining ART. Significantly, it has been documented

that Multiple Months Scripting improves adherence and viral suppression among people living with HIV, leading to a strengthened immune system and likely mitigates the risk of severe conditions like COVID-19 (Traub et al., 2020). or other conditions that may further depress the immunity of the patient who has HIV. Multiple Months Scripting contributes significantly to patient adherence and improved outcomes.

4.8 Multi-Month Scripting Commodities flow

The study findings indicate that for a majority of health care workers, 126 (98%), the facilities do maintain a fast-track drug refill system for Multiple Months Scripting clients and also that the clients are adequately informed on their return dates for their medication. A majority of respondents, 122 (95%), agreed that the pharmacy has appropriate records to ensure the facility is ready when persons living with HIV turn up. However, a relatively smaller number, 113 (88%) of the respondents, agreed that the facility actually prepacks ARTs for Multiple Months Scripting clients, and only 110 (86%) indicated the facilities have speed counters for Multiple Months Scripting persons living with HIV. Fewer health workers, 98 (77%), agreed that the facility had adequate commodity storage space, and less than half, 58 (45%), agreed that there was no stock out in the facility in the six months prior to the study. Figure 4.2 illustrates the findings.

Figure 4.3

Multi Month Scripting Commodities Flow
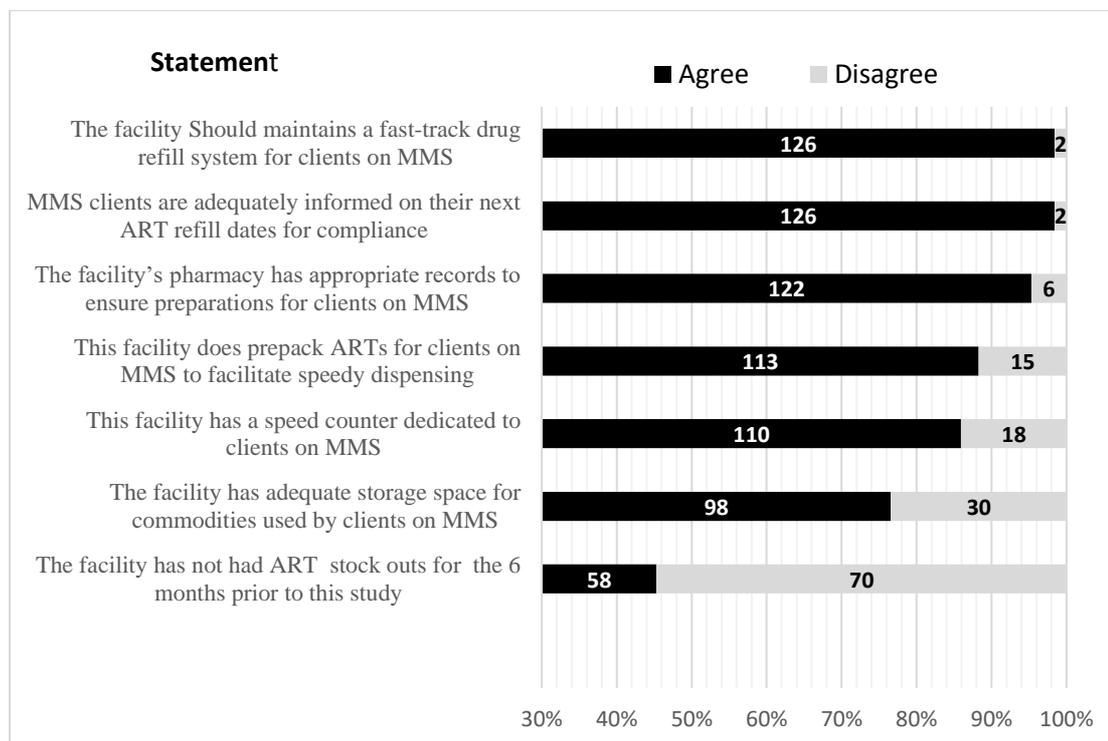
The KII interviews had some of the informats stating the following;

> *"...commodities forecasting and quantification is done routinely at facility level based on reports..."*
>
> *(KII#1,Male)*

Additinaly the health facility incharges stated the following;

> *"...it is anticipated that KEMSA will supply the commodities in a timely manner and our facilities has an express pharmacy for Multiple Months Scripting clients."*
>
> *"...we have a dedicated staff for adherence counseling and community health workers and peer educators pick drugs for clients..."*

"…the stock out was disrupting the Multiple Months Scripting return dates, and at times, we give shorter return dates than recommended…"

(KII #3,#9, #11and #14females)

The study findings relating to the client's information and adherence to prescribed return dates are consistent with what was documented by Hoffman (2017) with regard to Multiple Months Scripting return dates. Similar findings were recorded in a study where it has been documented that 63% of the studied countries were implementing 3 months of Multiple Months Scripting and 23% 6 months of Multiple Months Scripting (Daley,2020). Several health workers indicated that the Multiple Months Scripting commodities were not well stored, and there were frequent supplies. These findings are consistent with a study in South Africa by Pebody(2020) that there were supply chain challenges in low-income countries that affect the Multiple Months Scripting medication refill standards. Despite explicit knowledge and practice by persons living with HIV and health workers on Multiple Months Scripting commodities guidelines, there needs to be more commodities to the implementation of quality care and health workers' performance.

4.9 Healthcare workers Performance in HIV Public Outpatient Clinics

The findings on the independent variable relating to Health care workers' performance revealed that almost all the respondents 98% to 100% agreed that since they started implementing Multiple Months Scripting, there was a reduction in the number of clients turning up at the clinics, the health workers load and client waiting time. The majority of respondents, 93% - 97%, agreed that since the implementation of Multiple Months Scripting started, they have seen an increase in Client-to-health worker contact time,

retention rates, and the number of stable clients. The majority of the respondents, 99% to 98%, agreed that since the implementation of Multiple Months Scripting started, they have seen an improvement in the standard of care, health worker performance, and responsiveness to clients' needs. Figure 4.3 illustrates the findings.

The KII with regard to diucssion on health care worker perfromance stated that;

> *"...i have noted an improvement in quality of services since Multiple Months Scripting started and this was as a result of reduced frequency of client return dates..."*

> *"...there was an influx of clients from neighboring counties of Kiambu, Kajiado, and Machakos that is probably due to improved standards..."*

> *(KII #1, Male)*

The Health facility incharges stated that ;

> *" ...health care workers performance has improved, theire is reduced burn out ,health workers have more time with a patient and there is improvement in record keeping..."*

> *"... there is care planning and improved efficiency and improved patient satisfaction..."*

> *"...there is integration of community health workers, and this has helped in tracking of persons living with HIV and dispensing of medication to persons living with HIV who are unable to come to the facility..."*

> *(KII #7,#10,#13 females)*

Figure 4.4

Healthcare workers Performance in HIV Public Outpatient Clinics

Healthcare workersagreed that the implementation of Multiple Months Scripting:

Has reduced	Number of clients turning up at facility – 100% Health Care workers Load - 99% Client Waiting time at clinic and pharmacy -98%

Has increased	Client to health worker contact time - 93% Client retention rate in care - 97% number of stable persons living with HIV - 95%

Has Improved	Standard of care - 98% health care worker performance 99% health care worker responsiveness to clients' needs -98%

The findings have illustrated that there have been reduced client numbers at the facilities since the introduction of Multiple Months Scripting and thus decreased healthcare worker workload, which are associated with better healthcare workers' performance outcomes. The findings are consistent with a study by Portoghese (2014), which concluded that the higher the workload, the higher the exhaustion by healthcare workers, and Rusnock's (2017) findings that healthcare workers who had more workload experienced mental burnout resulting in low performance. A study by William et al. (2017) documented that workload, among other factors, had a direct impact on individual healthcare worker's performance. Additionally, these study findings that more time between healthcare workers and clients is consistent with what was documented by Aaron's findings that more time with clients made the health worker happier in his or her work, aiding in lowering the possibility of burnout and improving their performance (Aaron et al., 2019). It is documented by Westbrook

(2011) that the time that health workers spend with persons living with HIV improves their outcomes, reduces errors, and enhances health worker and patient satisfaction. Studies on client waiting time in Nigeria by Olowookere et al. (2012) and another study in Malaysia by Pillay DI concluded that patient waiting time was a major concern for persons living with HIV who expressed that it needed to be reduced (Pillay, 2011). Additionaly studies have shown Multile Months Scriting implementation improves quality of care (Bekker et al., 2018) and increased contact time between HCWs and clients (Kumasi, 2018; Deussom, 2022).

With regard to the standard of care, this study's findings were consistent with findings by Long et al. (2020) in sub–Saharan Africa, which concluded that for persons living with HIV on the differentiated care model, retention and viral suppression were higher than for conventional care persons living with HIV. It was also documented that for persons living with HIV in the DSD model, retention was slightly higher than for those not in the DSD model (Long et al. 2020)   . The ultimate measure of healthcare workers' performance is an improved standard of care, which is anticipated to have better healthcare outcomes.

4.10 Bivariate Analysis

The study employed Spearman's Rho correlation coefficient with the aim of determining the direction and magnitude of the connection that exists between the study variables. The findings in show that multiple months of scripting guidelines awareness and adaptation and healthcare workers Performance in HIV Public Outpatient Clinics had a significant (P=0.001) and positive correlation (r= .334[**]). In addition, the results show that healthcare workers' capacity development on multiple months Scripting and

healthcare workers Performance in HIV Public Outpatient Clinics had a significant (P=0.049) but negative correlation (r= -.559). Further, Client compliance with Multiple Months Scripting requirements and healthcare workers' performance in HIV public outpatient clinics had a significant (P=0.004) and positive correlation (r= .255[**]). Moreover, Commodities Flow in line with Multiple Months Scripting Guidelines and healthcare workers Performance in HIV Public Outpatient Clinics had a weak positive correlation (r=0.041) and was not significant (P< 0.648). The results imply that the study variables of healthcare worker awareness and adaptation of the guidelines and client compliance were moving in the same direction and closely related to the dependent variable of healthcare worker performance; however, the variable on healthcare worker capacity development was closely related to the independent variable on healthcare worker performance but was moving in opposing directions. The variable on Commodities flow did not have a significant correlation with the dependent variable of healthcare worker performance. See table 4.5 for further illustration.

Table 4.5

Bivariate Analysis

			Y	Xi	Xii	Xiii	Xiv
Spearman's rho	Y	Correlation Coefficient	1				
		Sig. (2-tailed)	.001				
		N	128				
	Xi	Correlation Coefficient	.334**	1			
		Sig. (2-tailed)	.001	.001			
		N	128	128			
	Xii	Correlation Coefficient	-.559	.339**	1		
		Sig. (2-tailed)	.049.	.001	.001		
		N	128	128	128		
	Xiii	Correlation Coefficient	.255**	.382**	.286**	1	
		Sig.(2-tailed)	0.004	.001	.001	.001	
		N	128	128	128	128	
	Xiv	Correlation Coefficient	0.041	.203*	.370**	0.1	1
		Sig. (2-tailed)	0.648	0.021	.001	0.261	.001
		N	128	128	128	128	128

Health care workers pefroamnce (Y), Multiple Months Scripting Guidelines awareness and adaptation (Xi), Healthcare workers Capacity Development on Multiple Months Scripting (Xii), Persons Living with HIV Compliance with Multiple Months Scripting requirements (Xiii) and Commodities flow in line with Multiple Months Scripting (Xiv)

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.11 Ordinal Logistical Regression

In modeling the predictive power of the independent factors influencing the performance of contracted health care workers at Nairobi County public hospitals, the researcher adopted an ordinal logistical regression to determine the Case Processing Summary, Model Fitting Information, Goodness-of-Fit, Pseudo R-Square, and test of parallel lines.

a) Model Fitting Information

The outcomes in Table 4.10 below show that the model was statistically significant as the significance value was below .05. In this case, there is a significant improvement of the final model over the null model $\{X^2(4) = 21.110, p=.000\}$. Therefore, the model was significant in determining the relationship between the study variables. The results are presented in Table 4.6 below;

Table 4.6

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	448.127			
Final	427.017	21.110	4	.000

Link function: Logit.

b) Goodness-of-Fit

The goodness-of-fit is aimed at testing the null hypothesis. The Pearson and deviance significance values are above .05, which rejects the null hypothesis (multiple-months-scripting had no significant healthcare workers' performance at HIV outpatient clinics in public health facilities in Nairobi, Kenya) with values of .230 and 1.000, respectively. Therefore, the alternative hypothesis (multiple-months-scripting had significant health care workers' performance at HIV outpatient clinics in public health facilities in Nairobi, Kenya) was approved, thereby implying that the multiple months scripting guidelines awareness and adaptation, healthcare workers capacity development on multiple months Scripting, client compliance to Multiple Months Scripting requirements and commodities flow in line with multiple months scripting guidelines

were significant determinants of performance of health care workers. The results are presented in Table 4.7 below;

Table 4.7

Goodness-of-Fit

	Chi-Square	**df**	**Sig.**
Pearson	1258.274	1160	.230
Deviance	425.395	1160	1.000

Link function: Logit.

The non-significant outcomes in Table 4.11 above indicate that the model fits the data well. The Pearson Chi-Square test $\{X^2(1160) = 1258.274, p=.230\}$ and the deviation test $\{X^2(1160) = 425.395, p=1.000\}$. The outcomes suggest a good model fit.

c) Cox and Snell R-squared and Nagelkerke R-squared

The study considered measures that are similar to R^2 in ordinary least-squares regression, which is the proportion of variance that the model can explain. In ordinal logistic regression, however, these are the pseudo R^2 measures. SPSS Statistics calculates the Cox and Snell, Nagelkerke, and McFadden pseudo-R^2 measures. The results are presented in Table 4.8 below;

Table 4.8

Cox and Snell R-squared and Nagelkerke R-squared

Cox and Snell	.152
Nagelkerke	.157
McFadden	.047

Link function: Logit.

The Nagelkerke value is more complete compared to Cox and Snell. The range of values for Nagelkerke falls between 0 and 1. It measures the proportion of the total variation of the dependent variable that can be explained by independent variables (Multiple Months Scripting guidelines awareness and adaptation, healthcare workers capacity development on Multiple Months Scripting, client compliance to Multiple Months Scripting requirements, and commodities flow in line with Multiple Months Scripting guidelines) in the current model. Therefore, Nagelkerke R-squared was preferred in this study as it is more complete compared to Cox and Snell, and it explained 15.7% of the variance of the dependent variable (Healthcare workers' performance at HIV outpatient clinics in public health facilities).

d) **Parameter Estimates**

The study employed parameter estimates in determining the relationships between the independent and dependent variables. The results are presented in Table 4.9 below;

Table 4.9

Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% C.I Lower	Upper
Location	MMS guidelines awareness and adaptation	1.011	.395	6.545	1	.011	.236	1.786
	HCW capacity development on MMS	-.890	.364	5.988	1	.014	-1.604	-.177
	Client compliance with MMS requirements	1.579	.498	10.034	1	.002	.602	2.556
	Commodities flow	.062	.478	.017	1	.896	-.875	.999

Link function: Logit.

The regression model was;

$$\text{logit}\ (P\ (Y \leq J)) = \beta_{J0} + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \text{ became}$$

$$\text{logit}\ (P\ (Y \leq J)) = 448.127 + 1.011X_1 + (-.890)\ X_2 + 1.579X_3 + .062X_4$$

The Parameter estimates presented in Table 4.13 above show that a unit increase in Multiple Months Scripting guidelines awareness and adaptation would lead to a 1.011 increase in healthcare workers' performance at public HIV outpatient clinics where it significantly (p=.011) influenced the healthcare workers performance at public HIV outpatient clinics. Further, the outcomes show that a unit increase in healthcare worker's capacity development on Multiple Months Scripting would lead to a .890 inverse increase in healthcare worker's performance at public HIV outpatient clinics where it significantly (p=.014) influenced healthcare worker's performance at public HIV outpatient clinics. In addition, the results show that a unit increase in client compliance

to Multiple Months Scripting requirements would lead to a 1.579 increase in healthcare workers' performance at public HIV outpatient clinics where it significantly (p=.002) influenced the healthcare workers performance at public HIV outpatient clinics. Finally, the outcomes show that a unit increase in commodities flow in line with Multiple Months Scripting guidelines would lead to a .062 increase in healthcare workers' performance at public HIV outpatient clinics where it insignificantly (p=.896) influenced the healthcare workers' performance at public HIV outpatient clinics. The results imply that client compliance to Multiple Months Scripting requirements was the most significant influencer of healthcare worker's performance at public HIV outpatient clinics, followed by Multiple Months Scripting guidelines awareness and adaptation and finally, healthcare workers capacity development on Multiple Months Scripting with significance values of .002, .011 and .014 respectively. The commodities flow in line with Multiple Months Scripting guidelines was an insignificant influencer of healthcare workers' performance at public HIV outpatient clinics with a significance value of .896.

Further, from $\log it\ (P\ (Y \leq J)) = 448.127 + 1.011X_1 + (-.890)\ X_2 + 1.579X_3 + .062X_4$, the study established the odds ratios (OR). Odds ratios represent the multiplicative change in odds and are dependent on the specific values of the coefficients where X1, X2, X3, and X4 represent four different independent variables. The odds ratio is calculated as follows: For a one-unit increase in X1, the odds ratio is exp (1.011) or approximately 2.75. This means that the odds of the healthcare worker perfromance (Y $\leq$ J) increase by a factor of 2.75 for each unit increase in X1 , holding other variables constant. For a one-unit increase in X2, the odds ratio is exp (-0.890) or approximately 0.41. This means that the odds of the outcome decrease by a factor of 0.41 for each unit increase in X2, holding other variables constant. For a one-unit increase in X3, the odds

ratio is exp (1.579) or approximately 4.85. This means that the odds of the outcome increase by a factor of 4.85 for each unit increase in X3, holding other variables constant. For a one-unit increase in X4, the odds ratio is exp (0.062) or approximately 1.06. This means that the odds of the outcome increase by a factor of 1.06 for each unit increase in X4, holding other variables constant.

In other words the variable on client compliance with MMS requirements had the highest Odds ratio of 4.85, meaning where client compliance took place it resulted in 4.85 fold increase in health worker performance. An increase in HCW guidelines awareness and adaptation led to a 2.75 fold increase in HCWs performance. Increase in capacity building led to a decrease in HCW performance by 0.41 fold. An increase in Commodities flow in line with MMS resulted in a 1.06 fold increase in HCWs Performance but this was not statistically significant.

The study found that Multiple Months Scripting Guidelines awareness and adaptation was a significant determinant of healthcare workers' performance in public HIV outpatient clinics. The findings are in line with Ariana's observation (Traub, 2020) that adaptation of Multiple months of dispensing provides either 3 or 6 months of medication and eliminates the need for monthly clinic visits. The study found that healthcare workers' capacity development on Multiple Months Scripting was a significant determinant of healthcare workers' performance in public HIV outpatient clinics. The findings compare with Bluestone (2013) that training healthcare workers in settings similar to the workplace has been proven to improve skills acquisition and performance. The study found that client compliance with Multiple Months Scripting requirements was a significant determinant of healthcare workers' performance in

public HIV outpatient clinics. The findings agree with Hoffman's observations (Hoffman,2017) on the potential benefits of multi-month Scripting. The study found that commodities flow in line with Multiple Months Scripting guidelines was an insignificant determinant of healthcare workers' performance in public HIV outpatient clinics. The results disagree with Pebody (2020) that the patient put on Multiple Months Scripting are those that are stable, hence most likely to adhere to medication, and therefore the benefits such as better viral load outcome, low defaulter rates, and compliance to treatment may not be purely attributed to Multiple Months Scripting.

Studies elsewhere similar to this study findings documented that clinical guidelines awareness and adaptation by healthcare workers improve their knowledge and hence better patient outcomes (Guerra-Farfan et al, 2023). This study's findings indicated a negative correlation between healthcare worker capacity development and performance; similarly, it is documented in many instances that efforts to improve health worker performance have focused on education, training, and dissemination of evidence-based guidelines. However, this singular approach has had mixed, if not disappointing, long-term results (Vasan, 2017). Dissemination of written materials and guidelines alone – often through in-service training courses – without additional post-training support intervention is ineffective in improving healthcare worker performance (Rowe, 2005). However, several other studies indicate there is a positive correlation between healthcare worker training and performance (Sendawula, 2018). Lidoro, in her study, concluded that based on linear regression, training had an appositive influence on health workers' performance at Kakamega County General Teaching and Referral Hospital (Lidoro,2018). In a study by Lakshmi in 2021, A test of mediation indicated that supportive supervision was associated indirectly with healthcare worker

performance through improvement in knowledge (Gopalakrishnan, 2021). Supportive supervision, On-job-training, and mentorship improve health worker performance (WHO, 2020). It is documented that some stable clients in Ethiopia were reluctant to Errol on Multiple Months Scripting, citing a large amount of pills without adequate storage or privacy at their houses, as well as six months duration without contact with facility staff; however, this was overcome by frequent home visits and phone calls by healthcare worker (Mantell,2023). As a result, there is a need to employ multiple approaches, including training, mentorship, mentorship, and supportive supervision, to influence healthcare worker performance effectively.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section is a dedicated summary, derived conclusions, and recommendations of this study's effect of multiple-months-scripting on healthcare workers' performance at HIV outpatient clinics in public health facilities in Nairobi County. In addition, the section has suggested areas for further studies.

5.2 Summary of Findings

The main objective was to establish the effect of Multiple Months Scripting on healthcare workers' performance in HIV public outpatient clinics in Nairobi County in Kenya. The specific objectives were to establish the influence of multiple months scripting guidelines awareness and adaptation; healthcare workers capacity development: client compliance to Multiple Months Scripting requirements, commodities flow in line with multiple months scripting guidelines on the healthcare workers performance in HIV public outpatient clinics in Nairobi County. Data was collected, analyzed, and presented as illustrated in chapter four, with study variables being used as parameters for the analysis.

5.2.1 Multiple Months Scripting Guidelines Awareness and Adaptation

The study found that the healthcare workers were aware of the Government of Kenya guidelines on Multiple Months Scripting and also adopted the guidelines in their practice. The KIIs indicated that the guidelines are available at the facility in hard copies, and in some facilities, some softcopies are available to healthcare workers and that healthcare workers received training on a need basis, but support supervision,

mentorship, and on-the-job training were taking place regularly. The Body Mass Index as a criterion for determining stable persons living with HIV has yet to be applied adequately. This variable was found to have a significant positive correlation with the healthcare worker performance and has a high influence on healthcare worker performance.

5.2.2   Health Care Workers Capacity on Multiple Months Scripting

The study found that actual healthcare worker training on Multiple Months Scripting was lower compared to the mentorship and on-the-job training that was done regularly. However, the healthcare worker unanimously agreed that their level of knowledge on Multiple Months Scripting implementation met the required standards. The KII indicated that the majority of the health workers had received either orientation, on-the-job training, or continuous medical training on Multiple Months Scripting. The observation by both the healthcare worker and the facility in-charges was that their performance had improved. However, on bivariate analysis, it was evident that although there was a significant correlation between healthcare worker capacity development and healthcare worker performance, the direction of the relationship was inverse in that a decrease in capacity development had an increase in performance. This was an exciting finding since it is expected that an increase in training would lead to an increase in performance. The plausible explanation for this might be due to the fact that a number of the healthcare workers indicated they had not received training, although they also indicated their level of performance was high. There seems to be a low level of healthcare worker training on the Multiple Months Scripting guidelines, but this is supplemented by mentorship, On-the-job training, and supportive supervision. This fact was emphasized by the KII, who indicated that the primary mode of sensitization on

Multiple Months Scripting guidelines was continuous medical education, mentorship, and regular support supervision by county health teams. Studies elsewhere alluded to the fact that where an inverse correlation between healthcare worker training and performance was observed, it was due to the fact that the front-line workers rarely received actual training but received orientation to the guidelines; hence, they felt no real formal training took place, but their performance was good. The findings upon ordinal logical regression indicated that the capacity development variable had a significant influence on healthcare worker performance, which may be attributed to the combined effect of capacity development not only training but also mentorship, on-the-job training, and support supervision. There is a need, therefore, to emphasize actual formal training of the front-line health workers in addition to other capacity development efforts.

5.2.3 Persons Living With HIV Compliance with Multiple Months Scripting Requirements

The study findings indicate that healthcare workers were doing a lot in sensitizing the clients on Multiple Months Scripting and also in identifying and enrolling the eligible clients into Multiple Months Scripting. The healthcare worker noted that the persons living with HIV were compliant with the Multiple Months Scripting requirements, especially for non-medical and medical interventions. However, relatively fewer health workers felt that some clients needed to adhere to their prescribed return dates as they should. Both the healthcare worker and the KII findings revealed that various measures are being implemented to improve return date compliance, and this included having dedicated staff to counsel the clients, regular reminders and calls to those who have not turned up at the clinics in their scheduled appointments dates as well as working with

community health workers to track those who defaulted on their return dates. The KII interviews also brought forth some of the challenges of Multiple Month Scripting implementation that need to be addressed, including clients forgetting their return dates due to long duration in between, clients' stable status monitoring, which may be a challenge if a client's condition changed before the appointed return dates, the challenge with adhering to other conditions monitoring such as diabetes and hypertension since these are not on Multiple Months Scripting. Hence, the client is likely to default on their return dates for other clinics, as they wait for the Multiple Months Scripting return dates. The health systems managers ought to establish approaches and innovations to address the compliance challenges for Multiple Months Scripting as well as other chronic conditions that are equally important for the health outcome client.

5.2.4 Multi-Month Scripting (Multiple Months Scripting) Commodities flow

The study findings and KII interviews indicate that the health facilities have been doing their quantification and ordering of medication in a timely manner based on facility data. healthcare worker indicated they do sensitize the clients on their medication and when they should come back for a refill. Both the healthcare worker and KII indicated that the facilities have speed pharmacy facilities where the clients on Multiple Months Scripting do not have to queue for medication. There was a clear indication from healthcare worker and KII that facilities do pre-packaging of medication for the clients on Multiple Months Scripting and also use peer educators or community health workers to deliver the medications to community support groups for those who may not come to the facility. There is also staff that is dedicated to counseling Multiple Months Scripting clients, calling to remind them of their return dates and also when they need to turn up for medication refills and clinical reviews. All these efforts are made to

ensure that the Multiple Months Scripting clients receive their medication in a timely and convenient way. The main challenge for the facility-level commodities flow was the lack of adequate storage facility and the sock outs that were reported by more than half of the health care workers. The KII also reported there were stockouts, and what they do in such cases they alter the return dates by giving clients shorter duration (less than three months) for medication refills. The stockouts were noted as some of the key challenges for Multiple Months Scripting implementation, even in other studies. On bivariate analysis, commodities flow did not have a significant correlation with the healthcare worker performance.

Additionally, upon ordinal logistic regression analysis, the commodities flow was not found to influence healthcare worker performance. This may be associated with the out-of-stock commodities that were reported by more than half of the healthcare worker and that were across the country within six months prior to the study. The Health systems managers and county health management team have to ensure commodities are available and there is adequate storage if Multiple Months Scripting will continue to be a success and beneficial to the clients, as reported in the study.

5.2.5 Healthcare workers Performance in HIV Public Outpatient Clinics

The study found that the implementation of Multiple Months Scripting had significantly reduced the number of HIV clients turning up at the clinic on a daily basis and that the spaced return dates for clinical review had reduced the staff workload at the facilities. In addition, the study found that they had more time with clients today compared to the time the implementation of Multiple Months Scripting started and that the implementation of Multiple Months Scripting had significantly reduced client waiting time for clinical review. Further, the study found that the implementation of Multiple

Months Scripting had significantly reduced client waiting time during ART refilling and that the implementation of the Multiple Months Scripting had significantly contributed to increased healthcare workers' contact time with clients. Moreover, the study found that the implementation of Multiple Months Scripting had improved the standard of client care and made staff more responsive to client's needs and that their performances had improved since the introduction of Multiple Months Scripting.

According to the regression equation, the study found that taking all factors (Commodities flow in line with multiple months scripting guidelines, Multiple months scripting guidelines awareness and adaptation, Client compliance to Multiple Months Scripting requirements, and healthcare workers capacity development on multiple months Scripting) to be constant at zero, the healthcare workers performance in HIV public outpatient clinics in Nairobi Kenya would be 2.973. The KII interviews revealed that both Nairobi County's CASCO and the Facility in-charges had noted a significant improvement in healthcare worker performance, improved standards of care reflected by Viral load results, and sustained stable state of the clients on Multiple Months Scripting. The Health systems managers should enhance the Multiple Months Scripting practice by addressing the noted challenges and supporting successful interventions, as this will enhance healthcare worker performance and client outcomes.

5.3 Conclusion

Based on the results of this study, it can be concluded that the healthcare workers were aware of the Government of Kenya guidelines on Multiple Months Scripting, that healthcare workers often refer to these Multiple Months Scripting guidelines in delivering services to my clients, that one of the criteria they used to decide if a patient was stable was to check the patient's most recent Viral load. One of the criteria they

employed in deciding if a patient was stable was if their Body Mass Index was above 18 if they had been on their current ART regimen for more than 12 months, and if the patient had not had an active opportunistic infection (including T.B.) in the previous six months. The healthcare workers sensitized stable persons living with HIV about the ART refill system and requested them to come back within three months for a refill, and the healthcare workers gave stable persons living with HIV six-month appointments.

The health workers felt that the training and mentorship they received regularly in their work had helped improve their responsiveness to persons living with HIV and their needs. They were knowledgeable on quality management to maintain high standards of care for persons living with HIV on Multiple Months Scripting; based on the support that they received, they felt Multiple Months Scripting implementation had improved their performance standard and that healthcare workers regularly received supportive supervision on Multiple Months Scripting implementation. healthcare workers regularly received on-the-job training (OJT) and mentorship on Multiple Months Scripting, and they were trained on the Multiple Months Scripting guidelines per the Government of Kenya-prescribed curriculum.

The study concludes that healthcare workers made the selection of clients for inclusion in Multiple Months Scripting and sensitized clients for Multiple Months Scripting appropriately based on the Governent of Kenya guidelines. In addition, the study concludes that most clients on Multiple Months Scripting always complied with their recommended 6-month appointment dates for clinical review, that clients on Multiple Months Scripting always complied with the recommended three-month return dates for medication refills, and that clients on 3-6 months Multiple Months Scripting had a high

retention rate in care, compared to non-Multiple Months Scripting clients. Moreover, the study concludes that clients on Multiple Months Scripting often adhered to their medications and that most clients on Multiple Months Scripting maintained stable states. The proportion of stable persons living with HIV among those on Multiple Months Scripting was higher than those not on Multiple Months Scripting; the clients on Multiple Months Scripting were more likely to be retained on care than those who were not on Multiple Months Scripting. persons living with HIV on Multiple Months Scripting often complied with non-medication instructions such as nutrition, hygiene, and self-care.

The study concludes that healthcare workers quantified, procured, and stocked adequately for ART commodities to cater to all clients, including those on Multiple Months Scripting. The facilities had ART commodities stockouts for clients on Multiple Months Scripting in the last six months; Multiple Months Scripting clients always received ARTs when they came for refills, and healthcare workers always sensitized Multiple Months Scripting clients on when to come for their medication refills. Moreover, the facilities maintained fast-track drug refilling systems for clients on Multiple Months Scripting; their facilities prepacked ARTs for clients on Multiple Months Scripting to facilitate speedy dispensation. The facilities had speed counters dedicated to clients on Multiple Months Scripting, and the facilities had adequate storage space for commodities used by clients on Multiple Months Scripting. Multiple Months Scripting clients were adequately informed of their following ART refill dates for compliance and that the facilities' pharmacies had appropriate records to ensure preparations for clients on Multiple Months Scripting.

The implementation of Multiple Months Scripting had significantly reduced the number of HIV clients turning up at the clinic on a daily basis, and the spaced return dates for clinical review had reduced the staff workload at the facilities. The healthcare workers had more time with clients today compared to the time the implementation of Multiple Months Scripting started, and the implementation of Multiple Months Scripting had significantly reduced client waiting time for clinical review. The implementation of Multiple Months Scripting significantly reduced client waiting time during the ART refilling implementation. The Multiple Months Scripting has significantly contributed to increased healthcare workers' contact time with clients, improved the standard of client care, and made staff more responsive to client's needs, and their performances have improved since the introduction of Multiple Months Scripting.

According to the regression equation, the study concludes that taking all factors (Commodities flow in line with multiple months scripting guidelines, Multiple months scripting guidelines awareness and adaptation, Client compliance to Multiple Months Scripting requirements, and healthcare workers capacity development on multiple months Scripting) to be constant at zero, the healthcare workers performance in HIV public outpatient clinics in Nairobi Kenya would be 2.973. The study further concludes that a unit rise in multiple months scripting guidelines awareness and adaptation would lead to a .184 rise in healthcare workers performance in HIV public outpatient clinics in Nairobi. A unit decrease in healthcare workers capacity development on multiple months Scripting had an inverse relation leading to a .129 increase in the healthcare workers performance in HIV public outpatient clinics in Nairobi. A unit increase in client compliance to Multiple Months Scripting requirements would lead to a .316

increase in healthcare workers' performance in HIV public outpatient clinics in Nairobi, and that a unit increase in Commodities Flow in line with Multiple Months Scripting Guidelines would lead to a .002 increase in healthcare workers performance in HIV public outpatient clinics in Nairobi.

At a significance level of 95%, Multiple Months Scripting guidelines awareness and adaptation, healthcare workers Capacity Development on Multiple Months Scripting, and persons living with HIV' Compliance to Multiple Months Scripting Requirements were significant factors in influencing the healthcare workers performance in HIV public outpatient clinics in Nairobi, Kenya with significant values as .014, .034 and .001 respectively.

5.4 Recommendations

i. The health care facility in-charges and health systems managers in Nairobi County should ensure healthcare workers are aware and practicing in accordance with the laid down Multiple Months Scripting guidelines. Specifically, health workers should be encouraged to apply Body Mass Index as part of the factors that determine Stable persons living with HIV for Multiple Months Scripting.

ii. The health sector leaders and decision-makers should ensure all health workers are trained, mentored, and regularly provided supportive supervision in accordance with laid down guidelines. Specifically, ensuring the training of front-line healthcare workers based on a set curriculum will go a long way in improving healthcare workers' performance.

iii. The health facility managers and healthcare workersshould provide relevant information to persons living with HIV and clients to ensure compliance. Specifically, it will ensure healthcare workers clearly inform and follow up with Multiple Months Scripting clients who fail to return to clinics for their medication and clinical follow-up since this will enhance patient stability.

iv. The health systems managers at national and county levels should ensure an efficient commodity supply chain system, commodity storage, and efficient client flow at the pharmacy. Specifically for Multiple Months Scripting, care should be taken to ensure storage space is adequate and there are express counters and effective quantification to minimize the potential for stockouts.

v. Policymakers and health systems managers at national and county levels should apply the findings of this study to enhance Multiple Months Scripting implementation in outpatient clinics in order to enhance healthcare workers' performance in outpatient clinics.

5.5 Further Research Considerations

Further studies should be done on the influence of Multiple Months Scripting on healthcare workers' performance in HIV public outpatient clinics in other counties to find out how the findings would compare for rural and remote setups with Nairobi, which is an urban county. The study also recommends that a study be conducted on Commodity flow to establish the impact of the stockouts on the implementation and sustainability of Multiple Months Scripting. It is also recommended that a study be conducted on the effects of Multiple Months Scripting implementation in other outpatient clinics that address other diseases and conditions apart from HIV to get a

complete picture of the effect of Multiple Months Scripting on the performance of healthcare workers in all outpatient clinics.

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APPENDICES

Appendix 1: Consent to Participate in the Study

Informed Consent Letter

Kenya Methodist University

P. 0 Box 267-60200

MERU, Kenya

SUBJECT: INFORMED CONSENT

Dear Respondent,

My name is **Peter Waithaka**. I am a Masters student from Kenya Methodist University.

I am conducting a study titled **Influence of Multiple-Months-Scripting on Health Care Workers' Performance at HIV/Aids Outpatient Clinics in Public Health Facilities in Nairobi, Kenya.** The findings will be utilized to strengthen the health systems in Kenya and other Low-income countries in Africa. As a result, countries, communities, and individuals will benefit from improved access to quality primary health services. This research proposal is critical to strengthening health systems as it will generate new knowledge in this area that will inform decision-makers to make evidence-based decisions.

Procedure to be followed

Participation in this study will require that I ask you some questions. I will record the information from you in a questionnaire checklist. You have the right to refuse participation in this study. You will not be penalized nor victimized for not joining the study, and your decision will not be used against you nor affect you at your place of

employment. Please remember that participation in the study is voluntary. You may ask questions related to the study at any time. You may refuse to respond to any questions, and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you are rendering.

Discomforts and risks.

Some of the questions you will be asked are on intimate subjects and may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer if you choose. You may also stop the interview at any time. The interview may take about 40 minutes to complete.

Benefits

If you participate in this study, you will help us to strengthen the health systems in Kenya and other Low-income countries in Africa. As a result, countries, communities, and individuals will benefit from improved access to quality healthcare services.

Rewards

There is no reward for anyone who chooses to participate in the study.

Confidentiality

The interviews will be conducted in a private setting. Your name will not be recorded on the questionnaire, and the questionnaires will be kept in a safe place at the University.

Contact Information

If you have any questions, you may contact the following supervisors:

1. Dr. Muthoni Mwangi

   Assistant Professor

   Department of Population Health

   The AgaKhan University

   Mobile No. 0722 986 349

2. Dr. Wanja Mwaura-Tenambergen

   Department of Health Systems Management

   Kenya Methodist University, Nairobi campus.

   Mobile No. 0726 678 020

Participant's Statement

The above statement regarding my participation in the study is clear to me. I have been given a chance to ask questions, and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time. I understand that I will not be victimized at my place of work whether I decide to leave the study or not, and my decision will not affect the way I am treated at my workplace.

Name of Participant (*Optional*)……………………………………………..……………

Date……………………….. /Signature ……………………………………

Investigator's Statement

I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and the benefits involved.

Name of Interviewer……………………….……………………

Date………………………………………..……………….

Interviewer Signature…………………………………………

Appendix 2: Study Tools: Health Care Workers Questionnaire

Serial No. ___

Name of Facility_____ Date of interview_____

Procced to implement this tool after receiving the informed voluntary consent from the respondent.

1.0   Biodata
1.1 Respondent gender (observe) a) male b) Female

1.2 Respondent age_____

1.3 Highest level of education attained
a) Certificate, b) Diploma, c) Graduate (university), d) Postgraduate
e) Other specify_____

1.4 Which is your area of training / Cadre
a) Doctor,   b) Clinical Officer,   c) Nurse,   d) Pharmacist e) Laboratory

1.5 How long have you served as a health worker? _____ Years

1.6 How long have you worked at the Comprehensive Care Center_____
years

For the next sections, kindly provide your honest responses based on your best judgement. The responses are categorized from strongly disagree to strongly agree. Tick one response per question

2.0 Multiple Months Scripting (Multiple Months Scripting) guidelines adapation.

This section is focused on questions relating to the guidelines as stipulated in the Government of Kenya's Differentiated Care Guidelines 2017. Tick the appropriate response for each of the questions

		Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
2.1	I am aware of the Government of Kenya guidelines on Multiple Months Scripting					
2.2	I often refer to these guidelines in delivering services to my clients					
2.3	One of the criteria I use to decide if a patient is stable is if their most					

		Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
	recent Viral load is < 1,000 copies/ml					
2.4	One of the criteria I use to decide if a patient is stable is if their Body Mass Index (BMI is above 18					
2.5	One of the criteria I use to decide if a patient is stable is if they have been on their current ART regimen for more than 12 months					
2.6	One of the criteria I use to decide if a patient is stable is if the patient has No active Opportunistic Infections (including TB) in the previous 6 months					
2.7	We Sensitize stable persons living with HIV about ART refill system and request them to come back in 3 months for a refill					
2.8	We give stable persons living with HIV 6 months appointment for full clinical appointment					

3.0. Health Care Workers Capacity Development on Multiple Months Scripting (Multiple Months Scripting)

This section is focused on questions relating to the Health Care Workers Capacity development on Multiple Months Scripting including training, on the job training, mentorship, and supportive supervision. Tick the appropriate response for each of the questions

		Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
3.1	I was trained on the Multiple Months Scripting guidelines per the Government of Kenya prescribed curriculum					
3.2	I was trained on sensitization and recruitment of stable clients on Multiple Months Scripting					
3.3	I was trained on relevant data collection and documentation of Multiple Months Scripting services provided to clients					
3.4	I regularly receive on the job training (OJT) and or mentorship on Multiple Months Scripting					
3.5	I regularly receive supportive supervision on Multiple Months Scripting implementation					
3.6	I was trained on the various records I need to chat and maintain					

		Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
3.7	I am well knowledgeable on quality management to maintain high standards of care for persons living with HIV on Multiple Months Scripting					
3.8	Based on support that I receive I feel Multiple Months Scripting implementation has improved my performance standard					
3.9	I feel that the training and mentorship I receive regularly in my work has helped improve my responsiveness to persons living with HIV needs					

4.0. **HIV Client compliance to Multiple Months Scripting requirements**

This section is focused on questions relating to HIV persons living with HIV' compliance to requirements for Multiple Months Scripting. Tick the appropriate response for each of the questions

		Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
4.1	I do selection of client for inclusion to Multiple Months Scripting based on the Government of Kenya guidelines					
4.2	I sensitize persons living with HIV for Multiple Months Scripting appropriately based on Government of Kenya guidelines					
4.3.	persons living with HIV on Multiple Months Scripting always comply with their recommended 6-month appointment dates for clinical review					
4.4	clients on Multiple Months Scripting always comply with the recommended 3 months return dates for medication refills					
4.5	persons living with HIV on 3-6 months Multiple Months Scripting have a high retention rate in care, compared to non-Multiple Months Scripting clients					
4.6	persons living with HIV on MMs often adhere to their medications					

		Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
4.7	Most persons living with HIV on Multiple Months Scripting maintain a stable state					
4.8	Proportion of stable persons living with HIV among those on MMs is higher than those not on MMs					
4.9	persons living with HIV on Multiple Months Scripting are more likely to be retained on care than those who are not on Multiple Months Scripting					
4.10	persons living with HIV on Multiple Months Scripting often comply with non-medication instructions such as nutrition, hygiene, and self-care					

5.0 Multi Month Scripting (Multiple Months Scripting) Commodities flow

This section is focused on questions relating to Multiple Months Scripting commodities and clients flow. Tick the appropriate response for each of the questions

		Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
5.1	In this facility aim to quantify, procure and stock adequately for ART commodities to cater for all clients including those on Multiple Months Scripting					
5.2	The facility has not had ART commodities stock outs for clients on Multiple Months Scripting in the last 6 months.					
	Multiple Months Scripting clients always receives ARTs when they come for refills					
5.3	I always sensitize Multiple Months Scripting clients on when to come for their medication refill					
5.4	The facility maintains a fast-track drug refill system for clients on Multiple Months Scripting					
5.5	This facility does prepack ARTs for clients on Multiple Months Scripting to facilitate speedy dispensing					

5.6	This facility has a speed counter dedicated to clients on Multiple Months Scripting					
5.7	The facility has adequate storage space for commodities used by clients on Multiple Months Scripting					
5.8	Multiple Months Scripting clients are adequately informed on their next ART refill dates for compliance					
5.9	The facility's pharmacy has appropriate records to ensure preparations for clients on Multiple Months Scripting					

6.0 Health Care Worker Performance

This section is focused on Health care worker performance following the implementation of Multiple Months Scripting in their facility. Tick the appropriate response for each of the questions.

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
6.1	Implementation of Multiple Months Scripting has significantly reduced the number of HIV clients turning up at the clinic on daily basis					
6.2	The spaced return dates for clinical review has reduced the staff workload at this facility					
6.3	I have more time with clients now than before we started implementing Multiple Months Scripting					
6.4	Implementation of Multiple Months Scripting has significantly reduced client waiting time for clinical review					
6.5	Implementation of Multiple Months Scripting has significantly reduced client waiting time when they come for ART refill					
6.6	Implementation of the Multiple Months Scripting has significantly contributed to increased healthcare workers contact time with clients					

6.7	Implementation of Multiple Months Scripting has improved the standard of client care					
6.8	Implementation of Multiple Months Scripting has made staff more responsive to clients' needs					
6.9	My performance has improved since introduction of Multiple Months Scripting					

The interview has come to an end. Thank you for your time.

Do you have a question or an additional comment you wish to share with me?

I wish to that you once more for accepting to volunteer your time to participate in this study.

Appendix 3: Key Informant Interview Guide (CASCO/ Facility In-charge)

Serial No. ___

Name of Facility_____ Date of interview_____

Proceed to implement this tool after receiving informed voluntary consent from the respondent.

1.0   Biodata
1.1   gender (observe) a) male b) Female

1.2 Respondent age_____

1.3 Highest level of education attained
a) Certificate, b) Diploma, c) Graduate (university), d) Postgraduate
e) Other specify_____

1.4 Which is your area of training / Cadre
a) Doctor, b) Clinical Officer, c) Nurse, d) Pharmacist, e) Laboratory

1.5 How long have you served as a health worker? ____ Years

1.6 How long have you worked at the Comprehensive Care Center?_____

years

2.0 Multiple Months Scripting Implementation Discussion Questions

2.0 What, in your understanding is Multiple Months (Multiple Months Scripting)

    Scripting?

2.1 Are you following the Multiple Months Scripting instructions in the facility?

2.2 What are the advantages on Multiple Months Scripting implementation?

2.3 What are the limitations of the Multiple Months Scripting implementation?

2.4 What suggestions would you have /recommend for improvement?

The feedback to the questions was recorded electronically and on paper format for ease of retrieving, analysis and report writing.

Appendix 4: Approvals

a) Kenya Methodist University Scientific Research and Ethics committee Approval

KENYA METHODIST UNIVERSITY
P. O. BOX 267 MERU - 60200, KENYA   FAX: 254-64-30162
TEL: 254-064-30301/31229/30367/31171   EMAIL: INFO@KEMU.AC.KE

25 April 2022   KeMU/SERC/HSM /8 /2022
PETER MUCHINA WAITHAKA
HSM-3-1698-3/2019
Kenya Methodist University

Dear PETER ,

SUBJECT: INFLUENCE OF MUTIPLE –MONTHS –SCRIPTING ON HEALTH WORKERS' PERFORMANCE AT HIV/AIDS OUTPATIENT CLINICS IN PUBLIC HEALTH FACILITIES IN NAIROBI KENYA

This is to inform you that Kenya Methodist University Scientific Ethics and Review Committee has reviewed and approved your research proposal. Your application approval number is KeMU/SERC/ HSM/ 8 /2022. The approval period is 25th April 2022 – 25th 2023.

This approval is subject to compliance with the following requirements

I.   Only approved documents including (informed consents, study instruments, MTA) will be used.

II.   All changes including (amendments, deviations, and violations) are submitted for review and approval by Kenya Methodist University Scientific Ethics and Review committee.

III.   Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KeMU SERC within 72 hours of notification.

IV.   Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU SERC within 72 hours.

V.   Clearance for export of biological specimens must be obtained from relevant institutions.

VI.   Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal

VII.   Submission of an executive summary report within 90 days upon completion of the study to KeMU SERC.

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

Yours sincerely

Dr. A. WAMACHI
Chair, SERC

b) National Commission For Science and Technology Approval

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 837419

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

RESEARCH LICENSE

This is to Certify that Mr.. Peter Muchina Waithaka of Kenya Methodist University, has been licensed to conduct research in Nairobi on the topic: **EFFECT OF MULTIPLE-MONTHS-SCRIPTING ON HEALTH CARE WORKERS' PERFORMANCE AT HIV/AIDS OUTPATIENT CLINICS IN PUBLIC HEALTH FACILITIES IN NAIROBI KENYA** for the period ending : 22/June/2023.

License No: **NACOSTI/P/22/18031**

837419

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY &
INNOVATION

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THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

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

c) Nairobi County Government Approvals

REPUBLIC OF KENYA
EXECUTIVE OFFICE OF THE PRESIDENT
NAIROBI METROPOLITAN SERVICES

Telegraphic Address
Telephone +3313002/4
When replying please quote

Kenyatta International Convention Centre
P. O. Box 49130-00100
NAIROBI

REF: EOP/NMS/HS/187

DATE: 21ˢᵗ July, 2022

PETER MUCHINA WAITHAKA
KENYA METHODIST UNIVERSITY
NAIROBI.

Dear Mr. Peter,

RE: RESEARCH AUTHORIZATION

This is to inform you that the Nairobi Metropolitan Services - Health Directorate's Research Ethics Committee (REC) reviewed the documents on the study titled " Effects Of Multiple-Months-Scripting On Health Care Workers' Performance At HIV/Aids Outpatient Clinics In Public Health Facilities In Nairobi."

I am pleased to inform you that you have been authorized to carry out the study at Mbagathi District Hospital, Riruta Health Centre, Mama Lucy Kibaki Hospital, Pumwani Maternity Hospital, Mathare North Health Center, Kangemi Health Center, Dandora II Health Centre, Karen Health Centre, Makadara Health Center, Langata Health Centre, Embakasi Health Centre, Westlands Health Centre, Kariobangi Health Centre, Kasarani Health Centre, Umoja Health Centre, PUMWANI MAJENGO DISPENSARY-Majengo, Dandora I Health Centre in Nairobi County. The researcher will be required to adhere to the ethical code of conduct for health research in accordance to the Science Technology and Innovation Act, 2013 and the approval procedure and protocol for research for Nairobi.

On completion of the study, you will submit one hard copy and one copy in PDF of the research findings to the REC. In addition, you will disseminate recommendations of the research at a virtual meeting organized by the REC. By copy of this letter, all the Sub County Medical Officers of Health and Medical Superintendent – Mbagathi are to accord you the necessary assistance to carry out this research study.

Yours sincerely,

DR. ANDREW TORO
CHAIR – RESEARCH ETHICS COMMITTEE
Cc: Director Health Services,
        All the Sub County Medical Officers of Health
        Medical Superintendent – Mbagathi

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