INTEGRATION OF HIV AND NON-COMMUNICABLE DISEASES SERVICES AMONG RURAL PRIMARY HEALTH CARE FACILITIES IN MKURANGA DISTRICT COUNCIL

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By

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A dissertation submitted in partial fulfillment of the requirement for the Degree of Master of Public Health at

Muhimbili University of Health and Allied sciences

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled: "**Integration of HIV and Non-communicable diseases services among rural primary health care facilities in Mkuranga District Council"** in partial fulfillment of the requirements for the degree of Master of Public Health of **Muhimbili University of Health and Allied Sciences.**

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Professor Gasto Frumence

(Supervisor)

Date_____

_____

Mr Thadeus Ruwaichi

(Co-supervisor)

Date_____

DECLARATION AND COPYRIGHT

I, **Lilian Lipangala Minzi**, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature:_____ Date:_____

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DEDICATION

To my beautiful children, my greatest treasures; Ellaine - siaeli and Denzel, may this achievement serve as a testament to the limitless possibilities that await you. Dream big, reach for the stars, and never forget that with dedication and determination, you can achieve anything you set your minds to.

ABSTRACT

Background: People living with HIV (PLHIV) have a greater chance of suffering from non-communicable diseases (NCDs) such as diabetes mellitus (DM), cervical cancer and cardiovascular diseases, in part because of the longer life expectancy brought on by anti-retro viral treatment (ART). With HIV and NCDs intersecting, integrative approaches to manage chronic diseases are considered critical especially in low resource environments where the complexity of multi-morbid illnesses presents concerns for health systems. In Tanzania, despite efforts to integrate HIV and NCD services since 2014, challenges persist in the rural Primary health care facilities and anecdotal evidence suggests suboptimal implementation of these integrative services within these facilities.

Objective: To explore factors affecting integration of HIV-NCD services among rural Primary health care facilities in Mkuranga district council.

Methodology: A phenomenological qualitative research design was used to conduct in depth interviews across health care providers working at CTC and members from hospital management teams, where they were purposively selected across 3 rural primary health care (PHC) facilities that operated care and treatment clinics within Mkuranga district council. The collected data was transcribed, translated into English and then analyzed using thematic analysis.

Results: In this study, three themes emerged which explained the factors that affect integration of HIV and NCD services at the care and treatment clinics. The findings revealed that limited availability of resources characterized by insufficient staffing at CTC, presence of financial constrain, limited availability of medical supplies and inadequate infrastructure at CTC have negatively affected the delivery of integrated HIV-NCD services. However, the findings further showed that the presence of enabling policies and guidelines in relation to integrated services and the awareness on non-communicable diseases among providers created a conducive working environment for the delivery of integrated HIV-NCD services. In addition, the findings reported a few perceived benefits of integration including increased job satisfaction to the

provider and improved quality of care to the patients and some perceived disadvantages of integration such as overloading the health care providers with work and causing delay while providing care. Lastly, this study revealed a few perceived strategies to improve integrated services which include among others increased number of staff and ensuring ongoing training to staff working at the CTC.

Conclusion and recommendation: Integration benefits both patients and providers with presence of enabling policies and guidelines identified as critical in facilitating integrated HIV-NCD care. However, lack of trained staff, limited financing, and substandard buildings was observed to hinder the delivery of integrated care at CTC. Presence of cultural beliefs and ignorance among community members regarding NCDs was also described to affect the provision of integrated services. As a recommendation, health facility management in collaboration with implementing partners should make targeted investment in areas such as capacity building, infrastructure development within the CTC so as to enhance service delivery and ensure successful integration of HIV and NCD services.

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LIST OF ABBREVIATIONS

ART	Anti-retroviral therapy
CTC	Care and treatment clinic
CVD	Cardiovascular diseases
DM	Diabetes mellitus
HAART	High active anti retro viral treatment
HCP	Health care provider
HIV/AIDS	Human immunodeficiency virus/ acquired immunodeficiency syndrome
MAC	Medication adherence clubs
MOCCA	Models of chronic care in Africa
MUHAS	Muhimbili University of Health and Allied Sciences
NCDs	Non communicable diseases
PHC	Primary health care
PLHIV	People living with HIV
RBG	Random blood glucose
SSA	Sub Saharan Africa
USA	United States of America
WHO	World health organization

DEFINITION OF TERMS

Integrative management: is an approach that applies multidisciplinary teams and services to provide people with chronic illnesses, complete and high-quality care. It involves incorporating various healthcare services, including prevention services, laboratory, pharmacy, and counseling to address the complex needs of patients with coexisting medical conditions so as to reinforce people centered health services leading to comprehensive and holistic care (1).

Co morbidities: simultaneous existence of more than one distinct illnesses or diseases in a single person (2).

Non communicable diseases: are a collection of medical conditions that do not originate from infectious agents and are non- transmissible between individuals. These conditions typically necessitate prolonged treatment and ongoing care (2).

Life expectancy: is the average number of years someone is expected to live at birth, in a certain country or geographical area if exposed to the age and sex-specific death rates that were in effect at the time of birth, for a particular year (3).

CHAPTER ONE

1.0. INTRODUCTION

1.1 Background

There were 40 million people living with HIV (PLHIV) globally by the end of 2022, two thirds of whom (25.6 million) are from the African Region (4). However, in WHO reports, non-communicable disease are the leading causes of death worldwide accounting for 74% of deaths (41 million people) globally. Every year, 17 million people under 70 years die globally from NCDs and 86% of these untimely deaths are from the low- and middle-income countries. This is because NCDs management are linked to huge inequity in the health care system often caused or exacerbated by poverty. The majority of NCD deaths globally (17.9 million annually) are caused by cardiovascular diseases followed by deaths from cancer (9.3 million), chronic respiratory diseases (4.1 million), and diabetes mellitus (2 million including deaths from renal disease induced by diabetes) (4).

NCDs are the main causes of ill health and death in PLHIV whereby this population has an increased risk of NCDs particularly cardiovascular diseases, cervical cancer and diabetes mellitus compared to people without HIV (5). This is due to the inflammatory reaction resulting from the HIV infection itself and antiretroviral therapy that increase the risk of hyperlipidemia and diabetes (5). Furthermore, the increased coverage of ART makes the life expectancy of PLHIV to increase hence exposing them to risk factors associated with NCDs and other risks of diseases related with aging (6). One of the main causes of non-AIDS-related morbidity and mortality among PLHIV is cardiovascular disease (CVD) followed by cervical cancer which contributes to 4·9% of cervical cancer occurrences worldwide in 2018, with 21% of those instances occurring in Africa (7). As such it was observed that an integrative approach regarding management of HIV and NCDs was a necessity due to the high rate of morbidity and mortality among PLHIV resulting from NCDs as evidenced in many scientific studies.

A study produced evidence on health system factors that affect integration of services. Five concepts closely related to health systems design and operation were elicited to enable or hinder integration of health services for those suffering from HIV and from other chronic conditions. They included proper relationships and collaboration; availability of competent and incentivized health workers; institutional structures and resources supportive of integration; effective leadership and a supportive organizational culture and a patient centered health system. However the review of the studies were conducted in USA; a high income country hence the findings may not be generalizable to low and middle income settings (8).

Nonetheless, high rates of NCDs among PLHIV have been highly reported in high HIV-burden, and low-resource settings placing strain on the health systems, which are ill-equipped to cope with the inherent complexity of multi-morbid patients. A study in Botswana explored the health care worker's perception on combining routine care for HIV and NCD. It showed positive attitude of health care workers towards routine integrated care for HIV and NCD and concluded that vast majority of medical professionals oppose the current practice of treating multi-morbid patients in separate units. Most of them agreed that routine integration would lead to optimal use of resources and would not overburden them with work. However most of the providers required ongoing training on NCD management in light of their low level of knowledge on NCDs and the fact that only 48% of them had ever heard of NCDs prior to this study (9).

In Tanzania, services for HIV and NCDs are provided in separate clinics with different waiting areas, consultation rooms, pharmacies, drug procurement chains, and funding sources. This approach leads to service duplication, with standalone clinics poorly prepared to care for multi-co-morbid patients. A study done in Dar es Salaam and Pwani by Shayo *et al* gave perspectives on the experiences of patients and health care professionals receiving and providing integrated services for HIV and NCD care after a program named 'models of chronic care in Africa (MOCCA)' was introduced with an aim of providing all essential services in a single one stop center. It showed patients acceptability to the integrated clinic due to the high-quality service that were provided to them and because they were not obliged to make frequent visits to the health facility; this improved their quality of life on a daily basis due to the decreased financial

load. Also, health care providers acknowledged benefits of the integrated care regarding reduced cost, time saving and increased detection of conditions that were previously undiagnosed. However long waiting hours due to staff shortage and limited privacy affecting patient confidentiality were some of the challenges that were elicited (10).

Tanzania started to introduce integrated management of HIV and non-communicable diseases just a decade ago. This was part of the country's National Multi-sectoral Strategic Framework for HIV and AIDS (2013-2017), which recognized the need to address the growing burden of non-communicable diseases among people living with HIV. The framework aimed to integrate HIV and non-communicable disease services at all levels of the health system, from prevention and screening to treatment and care where services for PLHIV were to be integrated into a single clinic model offering a cost-effective method for treating and caring for patients with co-morbidities (11). Nevertheless, it is observed that access to care in rural areas is limited compared to urban areas where rural health facilities have scant health supplies needed for screening and treatment of NCD as a result hindering the progress of integrative services (12). HIV and NCDs coexist and necessitate a comprehensive and integrated strategy to healthcare delivery, however there is concern of ineffective implementation of these integrative service.

1.2 Problem Statement

According to the World Health Organization, NCDs are a large pandemic and a leading cause of death worldwide accounting for 74% of mortality globally. Cardiovascular and renal deaths are elicited as the important causes of death in later calendar years among PLHIV with 14% attributed to renal and 10% attributed to cardiovascular causes (13)**.** Furthermore, studies have reported a higher prevalence of non-communicable disease among people living with HIV/AIDS compared to the general populations where the prevalence of NCDs among PLHIV in Sub Saharan Africa for hypertension is 20.1%, diabetes 5.4%, cervical cancer 1.5%, and chronic respiratory diseases 7.1% (14).

The rise in non-communicable diseases among HIV infected people has increased the demand for integrated care due to multiple chronic care needs where the Tanzanian government acting through the Ministry of Health introduced integrated management so as to pick up early and effectively manage NCDs among HIV infected clients (11). These services are perceived to have several advantages including improved compliance to medication among patients with co-morbidities, improved retention to care and improved overall quality of health care to patients with multi-morbid illnesses (15).

However anecdotal evidence of unpublished supportive supervision reports from regional and council health management teams, suggest suboptimal implementation of integrative services more commonly in rural facilities compared to urban facilities. Unfortunately, there is insufficient understanding on why these integrative services are under performing among rural primary health care facilities. The study aimed to investigate and explore the factors affecting integration of HIV and NCD services where the absence of this knowledge hinders the progress of integration of these chronic diseases.

1.3 Conceptual Framework

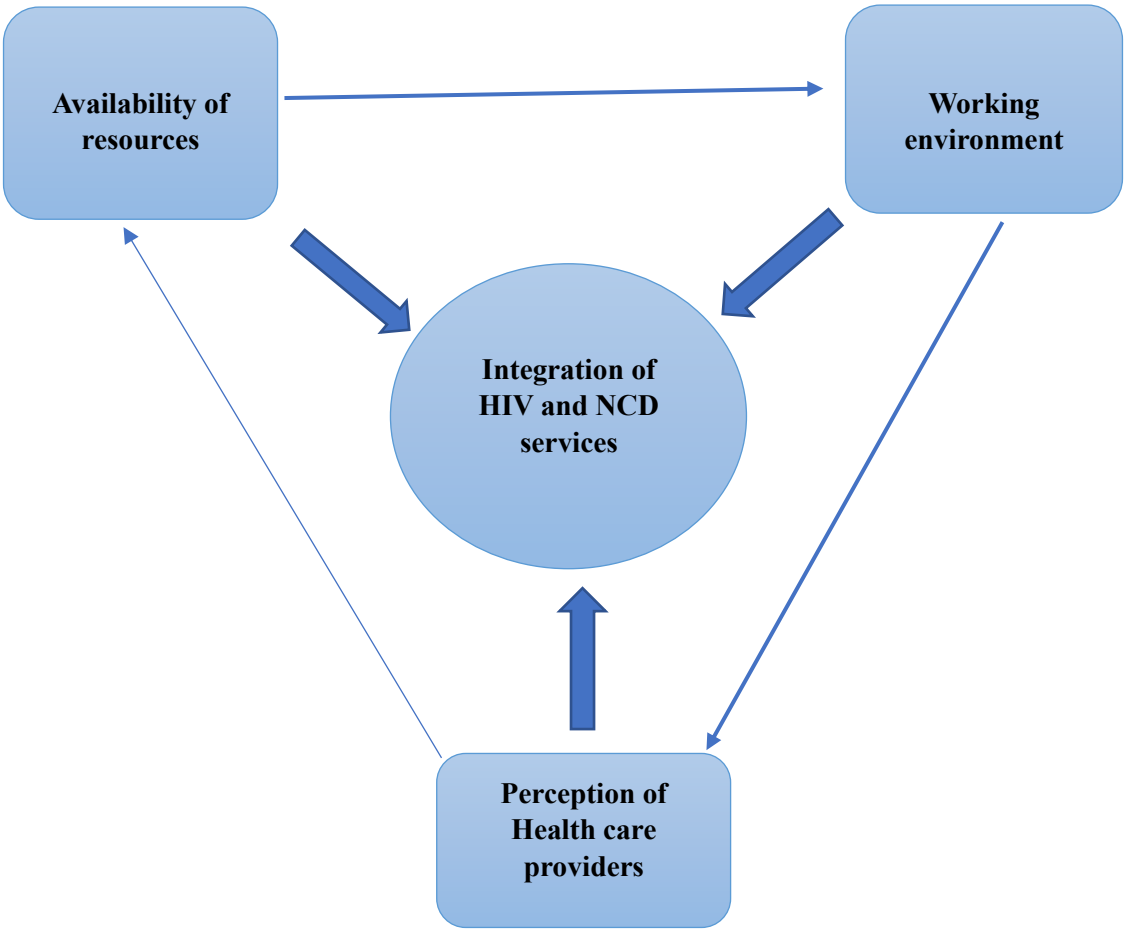


Figure 1: Self constructed conceptual framework: Factors affecting integration of HIV and NCD services.

The conceptual framework was self-constructed and created based on the knowledge generated from literature review on factors affecting integration of HIV and NCD services (9,16–18). The framework aimed at determining a set of key health- provider factors; how they interacted together in affecting the integration of HIV and NCD services among rural primary health facilities in Mkuranga District Council. The study focused on exploring the availability of resources: human resource which determined the amount of workload for the HCP at CTC, financing for care and treatment clinic services which determined availability of medical supplies and extra allowances/motivation for the HCP at CTC and presence of electronic medical records. Also, the working environment at CTC was explored example; the location of

the CTC unit, infrastructure and ongoing capacity building for the health care provider. Furthermore, the perception of health care provider towards integrative management of HIV and NCD was assessed.

1.4 Rationale

The study identified factors attributed to availability of resources, the working environment and perception of health care providers that affected implementation of integrative HIV and NCD services among rural primary health care facilities. Through the study findings; the health care workers, facility administrators and other stakeholders will be notified on what is affecting the progress of integrative services and thus able to develop appropriate interventions and strategies that will facilitate the effective implementation of integrative services within these facilities. This in turn will allow a more holistic approach to patient care hence improving continuity of care provided to patients with co-morbidities. Finally, the research will add knowledge on the integration of HIV and NCD services and may be a source of literature for scholars or academics who wish to do further studies on the area.

1.5 Research Question

1.5.1 Main Research Question

What are the factors affecting integration of HIV- NCD services among rural Primary health care facilities in Mkuranga district council?

1.5.2 Sub Research Question

1. How does availability of resources at care and treatment clinics affect integration of HIV-NCD services?
2. How does the working environment at care and treatment clinics affect integration of HIV-NCD services?
3. How does the perception of health care provider working at CTC affect integration of HIV-NCD services?

1.6 Objective of the Study

1.6.1 Broad Objective

To explore the factors affecting integration of HIV-NCD services among rural Primary health care facilities in Mkuranga district council.

1.6.2 Specific Objectives

1. To explore how the availability of resources at care and treatment clinics affect integration of HIV-NCD services
2. To find out how the working environment at care and treatment clinics affect integration of HIV-NCD services
3. To explore perception of health care provider towards integration of HIV-NCD services

CHAPTER TWO

2.0 LITERATURE REVIEW

This literature review examines the factors aiming to identify key determinants that shape the integration process and impact patient care quality. The knowledge gathered from this study is important for formulating strategies enabling more successful integration and supporting patient centered health care delivery.

2.1 Availability of resources affecting integration of HIV and NCD services

Limitations in the health facility budget (financial constriction) impairs operation of all services within facility including integrative services. A scoping review in United States assessing the barriers to the integration of treatment for substance abuse to the main healthcare stream; showed that most studies conducted, concluded that restricted financial resources were among the outstanding program/system barriers to the integration leading to the cessation of the funding programs (19).

Limited financing affects availability of medical equipment, medical supplies and drugs together with provision of extra allowances as motivation to health care providers. This leads to obstructing provision of comprehensive HIV and NCD care. A systematic review on integrated Tuberculosis and NCD care in low- and middle-income countries observed challenges to conducting integrated screening services including lack of training among health providers and shortage of medical supplies for NCD screening example: laboratory tests. The capacity of facilities to perform opportunistic screening of TB among patients with Non-communicable diseases is a key pathway for TB related interventions which can slow the spread of TB in low and middle income countries (16).

Additionally, more money and resources are directed towards HIV/AIDS programs due to the existence of vertically funded HIV programs. This leads to fragmentation of the already little financial resources at the expense of other health related problems including NCDs. This

challenge results into competition of funding between infectious diseases like HIV/AIDS and chronic conditions like hypertension (20).

Time restrictions and heavy workloads are recognized as major obstacles to successful service integration. In South Africa where a study on quality of integrated care for chronic diseases was done it reported inadequate human resource was a major hindrance to integrative services. Work overload arriving from staff shortage leads to making avoidable mistakes while providing care to patients and increased waiting time for patients during visits. Overall, increased workload of HCPs negatively impacts the provision of quality services to patients (18).

Successful integration requires efficient health information systems where there is coordinated patient care that is facilitated by presence of electronic health records. When health information systems are fragmented, integration of services becomes non effective. According to (21) barriers to integration included inadequate budget allocation to allow proper functional health information system, a sloppy heath financing system, and poor patient records.

However, in Tanzania, there is still a lag in integration of HIV and NCD services among rural PHC facilities, the goal of the study is to increase the knowledge by discovering how the availability of resources within our facilities affect integration of services for these chronic diseases.

2.2 Working environment affecting integration of HIV and NCD services

For integration to be successful at a facility level, there must be a culture of cooperation among health providers that requires strong leadership and governance. To create an environment supportive for integrative services, strong leadership must be present to make sure that plans and policies are in line with the objectives of integrated care. (8) Described proper leadership in terms of political will, effective managerial oversight and a proper organizational culture for implementation of integrative care.

A key component of service integration in health facilities is having competent infrastructures. Research highlights the significance of adequately furnished facilities that manage both chronic diseases guaranteeing the space and privacy of clients. Integration is described as a one-stop service for the client, occurring in the same consultation area by the same healthcare provider. Challenges observed to the delivery of integration include that if services are provided at different separate units within the facility, integration cannot be achieved. Integration requires communication between departments, adequately trained staff and presence of monitoring and evaluation tools for NCD (17).

A study done by (22) in Uganda showed that conducive environment for integrated services provide an opportunity for HCPs to do comprehensive screening and management of undiagnosed conditions, identifying key risk behaviors of patients leading to NCDs and promote health awareness to patients. Additionally, it showed that integrated services saves time and resources for both the patients and the provider since services are delivered under one roof.

Moreover a study on sustainability of integrated hypertension and diabetes with HIV care for PLHIV showed that for integration to be sustainable there must be an effective system to monitor progress, adequate staff training and involvement, proper senior leadership and supportive infrastructure (23). In Tanzania, HIV care and treatment services are provided for free due to government subsidies unlike NCDs management which are expensive and require cost sharing. According to (24), the study revealed that the major challenge for NCD care is the high treatment costs for Non-communicable disease. The overall treatment for NCDs including registration fees, laboratory and other investigation fees and medications are very expensive to patients hence making adequate NCD care non sustainable.

Furthermore, the degree to which healthcare professionals are knowledgeable about NCDs and HIV has a big impact on how well they can integrate services. According to published research, continuing education and training programs are essential for guaranteeing that healthcare professionals remain up to date on the most recent advancements in NCD care. A study done in Tanzania emphasized on the need of ongoing refresher training courses for NCD management

to ensure capacity building among health care providers in CTC so as to allow timely and adequate management of patients (24).

Nevertheless, among rural primary health facilities in Tanzania, little is known on how the working environment within our facilities contribute to the holdup in the progress of integration of HIV and NCD studies.

2.3 Perception of Health care provider towards integration of HIV and NCD services

Integrated care has been defined as the coordinated and simultaneous delivery of HIV services and NCD services to patients who need it when they need it. HIV and Non-Communicable Disease (NCD) services integrated provide a critical strategy for providing comprehensive healthcare services.

The attitudes and perception of healthcare professionals working at the care and treatment clinics regarding the integration of services are crucial. Positive attitudes of HCP towards integrative services enable efficiency of the services leading to collaboration with patients and coordinated care.(9) Revealed positive attitude of HCP towards routine integrated HIV/NCDs management at Primary health facilities, showing likely support for implementation of such integration policy.

However, the presence of negative attitudes and perception among health care providers regarding diseases like HIV/AIDS can significantly impact the delivery of integrated services. Presence of stigma and discrimination, commonly linked to HIV/AIDS can lead to poor interactions between the health care provider and patient; as a result obstructing access to care for other illnesses example the non- communicable diseases. Integration of HIV and NCD services minimized HIV related stigma and discrimination where the services are combined and provided in one area hence protecting the service users from being identified as AIDS victim (25).

Additionally, studies reveal that presence of good relationship between the provider and client accompanied with provision of support and reassurance to the patients by the health provider leads to better adoption of integrative services. A study in understanding factors influencing

linkage to HIV care in a rural setting revealed that use of offensive language and negative attitude among providers towards service users were found to be barriers to linkage in care which in turn can result to missed opportunities for screening and diagnosis of other chronic illnesses example NCDs (26).

Positive thinking of health providers towards integration influences willingness and abilities to promote and engage in integrated services. A study done by (24) revealed positive inputs from providers where if HIV and NCD services are provided under one roof , the patients would receive comprehensive care.

Nevertheless, among rural primary health facilities in Tanzania, it is still not known how the health provider's perception contributes to the holdup in the progress of integration of HIV and NCD services.

CHAPTER THREE

3.0 METHODOLOGY.

3.1 Study design

A qualitative phenomenological research design was employed to get lived experience from the providers among rural primary health care facilities regarding what is affecting integrated HIV and NCD care within care and treatment clinics. Due to the nature of the intended research that required a qualitative exploratory research design approach to be used, in depth interviews with the members of hospital management and health care providers working at CTC clinics were conducted.

3.2 Study area

The study was done in Mkuranga district council which is one of the rural districts in Pwani region. The 2022 Tanzania national census report stated that it had a total population of 222,921 occupying an area of 2432 km square. In December 2023, the cumulative number of PLHIV enrolled in CTC and receiving ART in Pwani region was 48270 and out of them, Mkuranga district council saw a total number of 8934 which was the largest volume of clients compared to other district councils, followed by Kibaha Town Council which saw a total of 8511 clients. (Unpublished Mkuranga District (DHIS-2) report 2023. The study included three Primary health facilities that operated care and treatment clinics including the district hospital and health centers from the Mkuranga district council.

3.3 Study population

The study participants constituted of health care providers including doctors and nurses working at the CTC clinics who were more knowledgeable on the services provided within the clinics and members from the hospital management team including medical officer in-charge and Nurses in-charge because of their role in managing day to day operations of health facilities including integration of HIV and NCD services.

3.4 Sample size

As described by Hennink and Kaiser, a qualitative study can recruit a range of 9 to 17 participants particularly if the study involves a relatively homogenous study population (27). In this study, a total of eleven informants were recruited determined by information saturation from the participants.

3.5 Sampling procedure

Three rural primary health care facilities operating CTC within the Mkuranga district council were identified using purposive sampling. The facilities were purposively selected based on their proximity, limited resources and limited time allocated for data collection.

Furthermore, purposive sampling technique was also employed to identify and approach eleven participants during the study. The health care professionals working at CTC were purposely selected due to their experience working in the clinics. Key members from the hospital management team; Medical officer in charge and Nurses in charge, were purposively selected because they are responsible for interpreting and implementing policies and directives from the Ministry of Health regarding the integrative services. As a result, the participants were expected to provide rich information during the in-depth interviews.

3.6 Data collection method and tools

An interview guide was utilized to conduct face to face in depth interviews with the participants from the selected facilities. The interview guide contained semi structured questions written in English which were then translated to Swahili to facilitate the data collection process as it was the medium of communication that was used while interviewing participants. Example of the interview guide questions included: what were the personal views of health care providers at CTC regarding integrative services, how did the availability of human resource at the CTC affect integrative services?

3.7 Data collection process

The study participants were purposively selected and asked for informed consent prior to the onset of the interview. During the interview, open ended questions were asked to the participants accompanied by audio recording of their responses using tools such as tape recorders and writing short notes on note pad after obtaining consent. Follow up questions or probes were also used basing on the responses from the participants. Privacy and confidentiality were adequately maintained during the data collection process. The interviews were conducted by the main researcher with aid from one research assistant who was given orientation on the research concept; that is the study objectives, rationale of the study and protocols for data collection by in depth interviews. Also, she was oriented on how to get the participants' consent, maintain privacy during interviews, understand and comprehend the interview guide and how to use the research tools (tape recorders) when conducting interviews**.**

3.8 Pre-testing of Data collection tools

Tools for data collection were pre-tested in Kibaha District Council before been used in the study to ensure consistency and that the questions in the interview guide would answer the research questions. Moreover, pre-testing also aided in ensuring that the study instruments achieved the research objectives.

3.9 Trustworthiness

Trustworthiness refers to the degree at which the field data and its interpretation is valid hence ensuring a high quality of the study. According to Guba there are four criteria outlined including credibility, dependability, conformability and transferability; referred as the four dimensional criteria in establishing trustworthiness (28).

- Credibility of the study

This refers to constancy of the study findings. In depth interviews with study participants were done to collect detailed information needed from participants. Triangulation was done by incorporating a variety of participants; health care providers at CTC and members of hospital management team and by gathering data from varying medical facilities with different attributes

such as district hospitals and health centers. Furthermore, the use of a research assistant during data collection enhanced credibility of this research.

- Dependability

A thorough description of the study methodology was provided so that if other researchers do the study in the same environment with the same context, the study findings may be applicable. All steps and activities done during the research process were documented so as to leave an audit trail.

- Conformability

The study results were based on the participants' replies rather than any potential bias from the researcher where by member checking was done with the health care providers and members of hospital management team to ensure that their perspective were accurately presented in the data collected.

- Transferability

This refers to how the study will be relevant where it can benefit other studies with similar perspective but in different settings. This was achieved by providing thick description of the study context: how data was collected and analyzed, the number and selection of study participants, the duration of the in-depth interviews and how long data collection was done so as to ensure that the findings may be transferable to other projects.

3.10 Data management and analysis

During data collection, all the interview audio was captured using a tape recorder and browsed through daily to assess the suitability of the interview guide and look for any new emerging themes that could be incorporated within the guide. The data was stored in a hard disk, of which only the research team had access to. Thereafter, the audio data was transcribed verbatim and translated to English followed by analysis.

Thematic analysis was employed during data analysis. It is defined as a data analysis process that involves exploring through a data set, identifying patterns, systematically coding and deriving themes. In this study, the following steps were followed during data analysis:

1. Familiarizing with data

There was transcribing of the audio data noting down information or ideas from the participants. The transcripts were read thoroughly so as to identify patterns and meanings that appeared in the data.

2. Generating initial codes

After data was familiarized, key words or significant statements were chosen, reviewed and grouped into different groups; creating a list of concepts (codes) that represented meanings and patterns observed in the data. Data from the participants was characterized and organized in meaningful groups across the entire data set followed by assigning additional relevant data to each code.

3. Creating themes

After data was coded, related codes were organized and grouped together forming a subtheme. Similar subthemes or phrases that express a comparable idea were grouped together to form the principal themes. Each theme said something about the related research question and had enough data to support them.

4. Reviewing themes

Refinement of themes was done where by similar themes and subthemes were merged together according to the availability of sufficient data within them to support them. It was made sure that data within the themes cohered together and created meaning while having a clear identifiable distinction from other themes in the data. Irrelevant themes that did not contribute to the overall analysis were removed

5. Defining and naming the themes

Further refining of themes was done so as to ensure that the essence of each theme was captured and ensuring that the data within each theme did not overlap. At the end of this stage there was a clear definition and naming of each theme.

6. Producing the report

This stage involved the final analysis and writing of a report after having a set of themes that were understandable. The report contained all the relevant and logical data extracts within each theme which in turn narrated the intended meaning.

3.11 Ethical issues

The Muhimbili University of Health and Allied Science (MUHAS) Ethical Review Committee was consulted to obtain ethical clearance for this study. Prior to the onset of the study, formal approval from the Regional Medical Officer, District Medical Officer as well as officers in charge of the selected primary health care facilities was also be obtained. Following an explanation of the purpose of the study, each participant signed a participation agreement form to give their informed consent. Only respondents that provided consent were interviewed and no names or personal identity of the participants appeared in the study to protect their confidentiality; instead, participants were coded with numbers. Privacy was ensured by conducting the interviews in private comfortable locations within the facility at the convenient time of the participants. Furthermore, the collected data was protected by storing in a hard disk that was accessible only to the principal researcher and research assistant

CHAPTER FOUR

4.0 RESULTS

4.1 SOCIO DEMOGRAPHIC INFORMATION

A total of 11 participants were interviewed in this study from the three purposively selected primary health care facilities. Respondents included doctors and nurses working at the care and treatment clinic and selected members from the hospital management team; medical officer in charge and the facility's nurses in charge. The study composition is shown in the table below.

Table 1: socio-demographic characteristics of the study participants

PARTICIPANT CATEGORY	PROFESSION	FREQUENCY	LEVEL OF EDUCATION	FREQUENCY	YEARS OF EXPERIENCE	FREQUENCY
Health care provider at CTC	Clinical officer	3 (27.3%)	Diploma	6(54.5%)	1 to 5	3(27.3%)
	Assistant Nursing Officer	3(27.3%)	Degree	0(0%)	6 to 11	2(18.2%)
Members of Hospital Management	Medical officer	3(27.3%)	Diploma	1(9.1%)	1 to 5	2(18.2%)
	Nursing officer	1(9.1%)	Degree	4 (36.4%)	6 to 11	2(18.2%)
	Assistant nursing officer	1(9.1%)			12 to 17	2(18.2%)
	TOTAL	11(100%)		11 (100%)		11(100%)

Findings of the study have been organized according to the themes that emerged from the data during data analysis. Three themes were generated, the first theme was the limited availability of resources for integrated services. The second theme that emerged was the working environment at CTC in relation to integrated services. Lastly, the theme on health care provider's perception to integrated services was generated.

Table 2: Identified codes, sub themes and themes in relation to integrated services

CODES	SUBTHEME	THEME
Shortage of staff	Insufficient staffing at CTC to provide integrated services	Limited availability of resources for integrated services
Patient ratio		
Borrowing of manpower		
Role of stakeholders	Financial constrain on delivery of integrated services	
Absence of incentives		
Low-income level of clients		
Low quality of services	Limited availability of medical supplies to deliver integrated services	
Medication, equipment and lab reagents		
Incomplete care to patients		
Clients' dissatisfaction on services		
Policies relate with services	Enabling policies and guidelines in relation to integrated services	Working environment at CTC in relation to integrated services
Ministry of Health collaborates with stakeholders		
Standard operating procedures		
Hospital protocols guide delivery of services		
Referral of patients to OPD		
Harmonization of information systems	Inadequate infrastructure at CTC to provide integrated services	
Location		

Available space		
Privacy of clients		
Workload	Perceived disadvantages of integration	Health care providers' perception to integrated services
Client overload		
Delay in delivering services		
Job satisfaction to the provider	Perceived benefits of integration	
Health care seeking behavior		
Quality of care		
Patient's cost and time		
Disease complication		
Timely diagnosis and monitoring of progress		
Under one roof treatment	Perceived strategies to improve integrated services	
Ongoing staff training, mentorship		
Staff skills		
Additional manpower		
Community awareness on NCD		
Data harmonization	Supporting elements for delivery of integrated services	
Experiences of health care provider		
Awareness on NCD among providers		

4.2 Limited Availability of Resources for Integrated Services

In this theme, analysis of data reported how the availability of resources at the Care and treatment clinic affected the delivery of integrated services. Analysis of data generated three subthemes which explained further how the availability of resources affected the provision of comprehensive integrated HIV-NCD care to clients. The identified subthemes include: insufficient staffing at the CTC, financial constrain and limited availability of medical supplies.

4.2.1 Insufficient staffing at CTC to provide integrated services

Majority of the participants reported that the number of staff available at CTC was small vs the patient ratio to offer comprehensive HIV-NCD integrated care. In addition to that, other respondents revealed that due to the shortage of staff at CTC, they had to borrow manpower from other departments so as to offer services; example from RCH.

> *"Anhaa, in reality we are not enough, we share responsibilities and sometimes we have to borrow staff from other departments to ask for help, so we are overwhelmed, we go ask for help especially from the RCH people who come to screen for cervical cancer for example and here we share responsibilities maybe one will stay for cervical cancer, another one for blood pressure testing, so we divide ourselves like that so in reality staff here are not enough*" (IDI 004)

4.2.2 Financial constrain on delivery of integrated services

Most of the study participants reported that the presence of limited financing affected delivery of integrated services by causing unavailability of NCD medication and lab investigations for ruling out NCD at the CTC. Participants reasoned that this was because of the fact that financing of CTC activities depended on implementing partners and was not enough to offer adequate service.

> "*Yes, for medical supplies and medicine, I can say that they are not enough because we are usually stuck due to lack of medical supplies until the implementing partners bring them to us, so if the stakeholders don't bring us the supplies, we can't provide services" (IDI 004)*

Furthermore, due to financial constraints most of the participants reported that there was no to little extra allowances provided to the providers at CTC. The absence of incentives to CTC staff

due to limited hospital revenue reduced the morale of providers in delivering care hence affecting the quality of integrated services.

> "*In terms of incentives, it's a bit of a challenge in many parts….because every facility is running on its own and the facility's revenue is still very small to guarantee reliable incentives to staff..."* (IDI 011)

Additionally, majority of the participants stated that most clients attending CTC are poor where they cannot pay for NCD treatment or even afford frequent transport fare to the hospital for NCD management. This was exemplified by one of the participants saying:

> *"From my point of view, what I see is that first of all, in these services, we deal with a lot of people who are of a low income, that is, their economic status is low, we find many that need help, some of them even lack transport fare to come to clinic*" (IDI 005)

4.2.3Limited availability of medical supply to deliver integrated services

The analysis of data revealed that at the CTC clinic there was shortage of medical supplies leading to incomplete and low quality of integrated services delivered.

> *"These other services, NCDs, here for us, I can't say that they are good, they have a little problem because the challenge is the medical supplies, eh, you find that the equipment are not there, the drugs are not there, hence the services there at CTC are not centered…"* (IDI 003)

Likewise, participants reported that absence of NCD medication at the CTC led to client's dissatisfaction on integrated services. This was further explained that if patients don't receive free NCD medication when they attend CTC clinic, they feel that they have wasted their transport fair coming to the clinic

> *"If you tell the patient that you have high blood pressure, you should come for a test tomorrow, then know that coming is a probability. And then if he comes and doesn't get medicine, he will see that he has wasted his money, he will see that he has used his bus fare incorrectly*". (IDI 001)

4.3 Working Environment at CTC In Relation to Integrated Services

In this theme, data analysis disclosed how the working environment at the CTC affected integrated HIV and NCD services. Analysis of data generated two subthemes where the first subtheme; presence of supporting policies and guidelines in relation to integrated services illustrated the existence of a facilitating working environment at the CTC to deliver integrated services. In contrast, the second subtheme that is the presence of infrastructural limitations at CTC, showed the existence of a negative environment that affected delivery of HIV-NCD integrated services at the Care and treatment clinic.

4.3.1 Enabling policies and guidelines in relation to integrated services

Most of the respondents described that the available policies and facility guidelines aligned with the delivery of integrated services. The participants explained that the hospital policies existed which provided guidance and directions to deliver integrated services to clients. They described that the standard procedure for every CTC client is that they should get life style counseling and Blood pressure measurement before been seen by a doctor.

> *"Aaah in procedure one of the services that we do is testing for each visit when our clients come. One of the services that they will get along with counseling they will be measured their blood pressure, yes, but also when they reach the point of coming to the doctor, they come to see me, I will give them their results, I will also provide them with more education and guidance on the side to help him not to continue to get more complications of these NCDS, for example on the side of pressure, I will advise him to reduce the use of extra salt, if he is a person who is suitable for exercise then we advise him to do more physical activities, reduces drinking a lot of sugary drinks, so I will advise him to get rid of this problem in his life and change his lifestyle"* (IDI 001)

Additionally, they revealed that the Ministry of Health collaborates with implementing partners in preparing guidelines which were then implemented at facility level.

> *"Oook, you know the Ministry of Health is well organized, that is, for example, the HIV and AIDS program is very good because when the Ministry prepare guidelines, they share them with the implementing partners, and then the stakeholders take it, they come to practice it early in the facilities even before the guidelines come out"*. (IDI 002)

However, the participants informed that the hospital guidelines required them to refer patients to OPD for further NCD management which was a challenge to offer complete integrated HIV-NCD care to patients.

> "*Aaaah, at the CTC he will get the services concerning HIV then he will be referred to the OPD for other treatment of those non-communicable diseases and other conditions but not there, it is not like maybe the CTC is a complete entity*". (IDI 008)

4.3.2 Inadequate Infrastructure at CTC to provide integrated services

The analysis of data revealed that the majority of the facilities had health information systems that were not linked to the CTC. This was explained further that the hospitals health information system was not accessible in the care and treatment clinic hence once a patient was diagnosed with NCD, the patient had to go back to OPD to be treated.

> "*No, these data systems are not connected because CTC database is there separately and OPD health information system is here separately*" (IDI 010).

Another participant added that:

> *"Aaaah for the issue of linkage we have not integrated these data systems eeeh due to the incompleteness of infrastructure that we have said, infrastructure we are not only talking about buildings but also information systems for patients. For example, right now we are using GOTHOMIS here in the OPD, so if the system would have been there at CTC... if the patient has any problem, it would have ended there at the CTC...If he has a pressure issue, if the system was there, he would have been treated there... if the data systems would have*

been good and because there is a computer there, the patient would have been accessed, sent to the laboratory and written medication for him while he is there" (IDI 011)

In addition to that, it was reported by majority of participants that the CTC building was small with few rooms available to offer comprehensive integrated services

"Hmm, this building is small, the rooms are not enough. The last room I welcomed you to, that room was supposed to be for the nurses but that room is used for phlebotomy, that's also where community health workers use because they don't have an office, so they'll do all their things there, that's also where nutrition assessment is done, that's where enhance counseling is done, that's where adherence counseling is done, you see, so we chase each other from the room, let me work and let me work, let me do the work". (IDI 002).

Another participant added:

"The building is not conducive because even the drug store that is there right now is for ARV's, but if you want maybe the building to be suitable for these other services, it means that it would require a special store for these NCD drugs... there is no room where you can work that's why I say the environment does not allow it". (IDI 008)

The participants added that the location of the CTC building was not conducive to offer privacy to patients whereby due to the unfavorable location of the building, the participants reported that they had lost to follow up some of their clients as a result compromising delivery of integrated services.

"The infrastructure in our facility is still not well, first of all it is small, that is, there is no large area to say it is self-sufficient. Second, privacy is limited, I say that because of the environment where CTC is located, it is in an environment where a high population of people pass by throughout the day. For example, here, let's say if a person wants to go to the toilet, he must go through the CTC building" (IDI 006)

Another participant added that:

"*Hmm, the CTC building is in the middle, we are surrounded…We are in the middle, if we turn left, we have maternity ward, if you turn in front, there are other offices like dental, there is a theater, behind us there is the OPD, so people must be passing by daily… This is not good, my friends, we have been filed by clients, patients have run away from us, you call someone to remind him that his date for clinic has arrived and he tells you that I am not coming....so with our CTC setup in Mkuranga, it is not really good. It is not good. It's true that many people miss up and lose follow up because of this building".* (IDI 002)

4.4 Health Care Providers' Perception to Integrated Services

The analysis of data showed the perception of health care provider towards integrated services where four subthemes were generated from the study respondents. The identified subthemes included: perceived drawbacks of integration, perceived benefits of integration, perceived strategies to improve integrated services and the present supporting elements for integrated services.

4.4.1Perceived disadvantages of integration

It was explained by most participants that with onset of integrative services, the efficiency in delivering care declines as staff become overloaded with work.

"*Well, so remember that the hospital continues to grow, but at the same time it doesn't only get clients from this area alone…there are other patients who come from outside the Mkuranga district, so we find that we are burdened, so even if you see maybe in terms of numbers, sometimes you may see that maybe we are sufficient, but in reality, during the implementation of these services, we become overwhelmed by the number of patients…*" (IDI 008)

Another participant added that:

"I will get many clients and then I don't know if I will be able to afford to serve them, that is, I will get many clients a lot of clients now the challenge comes with our number, are we able to serve them?" (IDI 001);

The participants also described that more time is spent on seeing patients with multi-morbidities compared to clients without NCD leading to long que of clients in the clinic ending up with delay while providing integrated HIV-NCD care.

> "*Every patient has their own service; you know how you will talk to someone who has normal blood pressure and how you will serve them is different from the one with high blood pressure…so patient management is what will make you spend a long time with the customer. Therefore, in short, it will increase because of more services that have to be provided due to his multiple illness"* (IDI 001)

4.4.2 Perceived benefits of integration

In this subtheme, participants described that integration of HIV-NCD services had advantages to both the provider and clients. For the provider, study participants described that the provider become satisfied on delivering required services to their patients through integration where the benefit they get from integration is seeing their patients improving hence they would strive more to improve services to their clients.

> "*Personally, the benefit I get in reality is when the patient is doing well, I benefit because my biggest task is improving his health*". (IDI 004)

For the clients, they elaborated that firstly integrated services under one roof will improve quality of services for patients leading to increase in care seeking behavior of their clients

> *"If a recipient of our services who may have high blood pressure or diabetes enters here and then all the tests needed are available, like the ones we take for Viral load and CD4... and if he needs medication, the prescription to be done in this building and he receives his medicine in this building, that is, if he leaves this building he goes home straight without going to the pharmacy or anywhere so I think if we improve in that way, I think we will attract our clients to attend their clinics very well"* (IDI 002)

Secondly, participants described those integrated services would save costs and the patient's time by reducing frequency of visits to the clinic. Furthermore, for a patient with multi-morbidities integrated care would reduce disturbance for the clients by seeking care from multiple facilities.

"*It will reduce the burden of him moving around in different hospitals, we will have removed the burden, maybe the transport fares from moving between facilities, but we will also have saved his time, maybe he would have come here, he would queue up, he would then go to the OPD and queue up again, so with these services we would make it easy for him*". (IDI 004)

Lastly, it was described by the participants that integrated services allowed early diagnosis of NCDs for patients with co-morbidities reducing further progression of the disease and their complications. This was explained by the participants that they had previously lost patients without knowing the right cause of death.

"I think the service is very helpful because we lost many patients without knowing why we are losing them, that's why they say he didn't die of HIV, he died of high blood pressure, or he died of diabetes. We were not following it, we were stuck with only one thing, but our client needed additional help apart from the HIV service that we were providing" (IDI 002)

4.4.3 Perceived strategies to improve integrated services

According to this theme data analysis, the study participants reported strategies that could be implemented to improve integrated HIV-NCD services. Firstly, the study participants argued that for integrated services to be comprehensive, all NCD and HIV services should be provided under one roof.

"In my opinion the infrastructure should be improved so that it is friendly. We are talking about the service delivery points should be good. For example, we have talked about the issue of the services we provide for integrated care for patients, maybe the patient has a certain problem, the places where he gets his services, maybe CTC, his services should end there, and he should not come here to OPD for further attendance". (IDI 011)

However, for that to happen, the participants elaborated that all the necessary medical supplies for integration should be available at the CTC.

> "*In addition, I think there should be more cooperation with the stakeholders in ensuring that we provide these services, especially in medical equipment, but even more in medicines and tests. For example, my role is to diagnose patients and prescribe medication but I am not sure if he will be able to buy them or not, so we are trying to encourage them to adhere to medication, so if the stakeholder supplies the medication and other supplies it will be good*" (IDI 004)

Secondly, the participants urged that health care providers at the CTC required on-going training on NCDs to enable them to make proper diagnoses and management. Additionally, other participants recommended that training regarding customer care to clients was required to improve effectiveness of services provided.

> "*another thing for those who provide that service, they should be given regular training...that is, maybe every two or three months, staff should be given refresher training, yes, they should be given regularly to be able to keep them updated all the time , but also there should be a procedure to provide training, I should say customer care, especially in that unit, that's why you find in many places people complain that when these customers get there, they are not listened to"* (IDI 003)

Thirdly, participants recommended that more staff need to be added at the CTC so as to offer efficient integrated services.

> "*The challenge is that there is a great delay of services due to the shortage of staff, because we depend on two or one staff at the CTC. Therefore, you find that we need more employees at the CTC so that the services go smoothly*" (IDI 006)

Lastly, the participants recommended that mass education should be provided within the communities regarding NCDs stressing on the importance of regular and early screening for clients. This is because harmful cultural beliefs plus ignorance regarding NCDs within the communities affect provision of integrated services, revealed by the respondents.

> "*In the streets and communities, education should also be provided sufficiently, that is, it should not end up that the service providers only provide that education at the facility, it should not end there. The education in the streets regarding NCD is still not enough*". (IDI 003)

4.4.4 Supporting elements for delivery of integrated services

During data analysis, it was revealed from the health care provider's perception that there were supporting factors that promoted delivery of integrated services. Foremost, the participants reported that there was a section in the CTC 2 database that included NCDs parameters such as blood pressure and cholesterol measurement. This was reported as a pushing factor to offer integrated care to the patients.

> *"…because these BP tests themselves are in our CTC 2 and because our CTC 2 wants us to do these tests, we have to do them whether we like it or not…"* (IDI 002)

However, they indicated that there was no section for prescription of NCD medication in the CTC 2 database hence allowing room for improvement.

> "*They should improve it a little bit, they should add two lines so as to include treatment for NCD because we only write a number on the CTC 2 card; we only write a number if he has been given septrin, so there should be a way to write a number if we have given him blood pressure medicine or diabetes medicine…"* (IDI 002)

Secondly, majority of participants declared that they had experience on taking blood pressure measurement, measuring weight and height to estimate BMI and offering counselling on life style changes to clients at CTC. Moreover, the participants reported that through the orientation sessions they had received during supervision from the implementing partners, they were able to deliver better services compared to previous times.

> *"Eeh, we only get those supervision visits, when the stakeholders come, they give us direction regarding NCD. So the visits help us go forward and continue to provide services"* (IDI 001)

Lastly, during data analysis it was described by respondents that HIV and NCDs are interrelated stating that some of the ARV drug leads to increased body weight of patients hence NCD, signifying an understanding of non-communicable diseases. Another participant added that they know that PLWH are normal human beings and that they can suffer from other diseases example NCDs apart from HIV/AIDS.

> "*These are human beings, it's not that they only have one problem, they may get other problems. We know that there are people who have HIV, have diabetes and have high blood pressure. Therefore, we have already become alert about these diseases. We ask them if they have other problems other than this so that we can help him too". (*IDI 002)

CHAPTER FIVE

5.0 DISCUSSION

This chapter discusses findings on factors affecting integration of HIV and NCD services within care and treatment clinics. The study identified challenges such as insufficient staffing, financial constrain, limited availability of medical supplies and inadequate infrastructure at CTC as well as facilitators for integration including presence of enabling policies and guidelines and supporting elements for integrated HIV and NCD care.

5.1 Resource Availability on Integrated Services

5.1.1 Insufficient staffing at CTC to provide integrated services

Shortage of staff at the CTC acts as a hurdle to the provision of integrated services as it prolongs the waiting time for patients in the clinic and compromises the quality of care provided to the patients due to overburdened health care providers. Furthermore, due to the scarcity of staff at the CTC, continuity of care is also disrupted as effective integration requires multidisciplinary teamwork and collaboration among different health care professionals. This was in line with a study that was done in rural South Africa describing the perspectives of providers on the quality of integrated chronic disease care where staff shortage was identified as a key challenge hindering the quality of care delivered in facilities. Scarcity of staff was shown to contribute to increased workload stress and burnout among health care providers leading to making avoidable mistakes while providing care and presence of irritable behavior among health care providers that negatively impact the provision of quality services (18).This finding suggests that shortage of staff directly affects sustainability of integrated services by disrupting continuity of care. This is in turn will compromise the ability to provide holistic care to patients with multi-morbidities hence potentially leading to suboptimal client outcomes. As a result, the management of health care facilities and implementing partners need to address the observed critical shortage of human resource at the CTC to enable effective integration of HIV and NCD services within primary health facilities**.**

5.1.2 Financial constrain on the delivery of integrated services

It is explained by most of the participants that their facilities had financial limitations hindering procurement of necessary medications, diagnostic tools and equipment making it difficult to deliver integrated services effectively. Additionally, funding to run CTC activities normally come from implementing partners which was stated to be insufficient and unreliable to ensure complete delivery of integrated HIV and NCD services whereby most of the funds are directed to the supply of antiretroviral therapy and presumptive treatment for opportunistic infections without considering NCDs as one of the emerging diseases affecting the victims of HIV. Moreover, most participants reported that clients of CTC come from low-income levels who cannot afford NCD treatment and management which narrows down further their accessibility to care. A study done in Tanzania showed similar results, where due to scarcity of funding patients were required to pay for NCD services such as consultations and prescriptions in contrast to the free HIV services. This created an obstacle to the effective implementation of the integrated care model. On top of that, due to insufficient financing there was ineffective execution of exemption policy for the eligible clients, which denied them the right of accessing the full package of HIV and NCD care. Healthcare professionals who reported prescription of NCD medications to patients to buy from pharmacies corroborated this, saying that doing so was seen as a disadvantage for patients with low incomes and no health insurance (25). Additionally, a study done by *Haruna et al*, came up with comparable conclusions where by it was highlighted that there was a significant financial burden of treating non-communicable diseases among people living with HIV/AIDS at the CTC. It was emphasized that the current costs associated with NCD care including tests, medications and consultations pose a major obstacle to the sustainability of integrated care due to the financial strain that arises (24).This finding suggests that limited financing in primary health facilities is one of the biggest hurdles which significantly hinder accessibility to integrative HIV and NCD services in the CTC hence emphasizing the need for universal health insurance for all.

5.1.3 Insufficiency of medical supply to deliver integrated services

Insufficient medical supplies at the care and treatment clinic is reported as a significant factor that affects the integrated delivery of services for HIV and Non-communicable diseases. Limited availability of medical supplies leads to the provision of incomplete NCD treatment and services to clients which in turn compromises the quality of care provided to patients as they do not receive the full spectrum of interventions, they need to manage their chronic conditions adequately. Additionally, the inconsistent access to medications and supplies is perceived as a barrier to maintaining engagement between clients and their providers as patients become dissatisfied and disillusioned with the health care system leading to decreased adherence to treatment regimens and follow up appointments. This study aligned with a study evaluating the quality of integrated chronic disease care in rural South Africa which demonstrated that due to stock outs of NCD medications such as anti-hypertension drugs and shortage plus malfunctioning of equipment like the blood pressure machines, the integrated chronic disease model (ICDM) that was introduced showed little benefits to the clients receiving integrated care for chronic diseases. It was noted that the implications of the study findings extended to the planning of care for integrated chronic illnesses in other low and middle income countries as well as the statewide scaling up of the ICDM model in South Africa (18). In addition to that, a study done in Uganda (22) reported challenges in the facility's capacity to ensure continuous supply and access to medication for NCDs which in turn affected the effective implementation of integrated care clinics for HIV/AIDS, diabetes and hypertension. This finding implies that there is a need for improving the operational capacity of health facilities by addressing the gaps in medical supplies and other resources hence ensuring effective implementation of integrated HIV and NCD services.

5.2 Working Environment at CTC in Relation to Integrated Services

5.2.1 Enabling policies and guidelines in relation to integrated services

Presence of supportive policies and guidelines were identified as a crucial element in achieving effective integrated HIV and NCD care. They provide a structured framework and clear expectations to the providers on how integrated services should be coordinated and delivered within CTC. Furthermore, aligned policies and guidelines define the principles of integrated care hence providing clarity and consistency to the health care providers. The study findings were aligned to the observations demonstrated in a study conducted in four countries in the East African region; Kenya, Rwanda, Tanzania and Uganda where high-level health policies and treatment guidelines recommend integrated delivery of HIV and NCD care. The recent recommendation of integrated HIV and NCD service delivery plans is partly due to the growing burden of NCDs and a shift towards person-centered differentiated service delivery for persons living with HIV (17). However, this is in contrast to another study done in Tanzania on barriers and facilitators of receiving optimal care for hypertension and diabetes among people living with HIV/AIDS where it was revealed that there were no facility protocols for NCD screening among PLHIV attending care and treatment clinics. This acted as a barrier for early diagnosis especially among PLHIV with asymptomatic diabetes or hypertension as only patients with revealed symptoms of NCDs, were referred to the OPD for further management (29). From a policy perspective, the presence of enabling policies and guidelines from the national and facility level recognizes the importance of integrated services within care and treatment clinics. However, the discrepancy between policy and practice evidenced by factors such as inadequate infrastructure at the CTC suggests the need for stronger policy implementation and monitoring mechanism from the Ministry of health and governing bodies.

5.2.3 Insufficient Infrastructure at CTC in relation to integrated services

In the context of delivering integrated services for HIV and Non-Communicable Diseases (NCDs) under one roof, inadequate infrastructure has impact on patient's access to integrated care. Health facilities with substandard buildings often lack the physical space and appropriate layout necessary for continuous integration. Moreover, deficient health information systems compromise the efficient management of patient data essential for coordinated care delivery.

Insufficient IT infrastructure such as unreliable internet connectivity undermines efforts to track patient outcomes, coordinate HIV and NCD treatment plans, and monitor disease trends effectively. Addressing these infrastructure challenges is critical for optimizing service integration, enhancing healthcare delivery, and ultimately improving health outcomes for populations affected by both HIV and NCDs. It was noted that provision of integrated services in a single stop clinic was affected because different health information systems existed for HIV and NCD which in turn affected recording of patient's information in the hospital records system (10). Another study assessing sustainability of integrating hypertension, diabetes and HIV/AIDS at primary health care facilities in Ethiopia concluded that absence of adequate infrastructure had a negative effect on the sustainability of integration therefore addressing such limitations would improve accessibility to such services for populations in need (23). Insufficient infrastructure poses a barrier to the continuous delivery of integrated services suggesting a need for investment in the physical and technological infrastructure. The Ministry of health need to make bold decisions to allow effective integration to take place including integrating the electronic health information system across all services to facilitate continuity of care for patients with HIV and NCD. Also, there is a need of merging all NCD and HIV clinics that operate within facilities instead of having independent NCD clinics and standalone CTC clinic with some component of NCD services.

5.3 Health Care Providers' Perception to Integrated Services

5.3.1 Perceived benefits of integration

There are several advantages described of integrating HIV and NCD care. The benefits of integration are illustrated to be among both the health care provider and the patients. They range from increasing job satisfaction to the health care worker, increase work efficiency, improved quality of care provided to the patients, reduced disturbance to patients increasing their comfort and allowing proper monitoring of patients. These findings are similar to other findings identified by Shayo E *et al* where they revealed that integration helps patients with multi-morbidities live fulfilling lives by minimizing daily disturbances, saving time and money. Moreover, the health care providers and key study informants including members from NGOs

recognized that integrated service delivery model had strategic value in promoting early diagnosis of various illness conditions. It was further explained that by integrating these services, HIV-related stigma and discrimination would be reduced and the facility's limited resources would be used effectively (25). Another study on implementing integrated care clinics for HIV infection, diabetes and hypertension in Uganda made similar observations that aligns to the study findings where by using an integrated care model in healthcare institutions improves the detection of non-communicable diseases, facilitates thorough co-morbid care, and reduces the occurrence of duplication for care procedures (22). This finding implies that effective integration is worth investing in our health care facilities as it is advantageous to the client, staff and the facilities. Future research should focus on exploring the long-term benefits of integration on the patient, health care provider and the overall facility.

5.3.2 Perceived disadvantages of integration

The integration of HIV and Non-Communicable Disease (NCD) services within Care and treatment Clinics (CTCs) represents a major step towards comprehensive healthcare delivery. While this approach offers several advantages, a number of drawbacks have been highlighted. One notable challenge is the complexity of managing two illnesses under a single integrated treatment approach. HIV and NCDs often require distinct treatment and monitoring protocols, necessitating specialized expertise that may strain the already scarce healthcare resources. Moreover, ensuring patient privacy and confidentiality within integrated services remains a critical concern, given the sensitive nature of HIV status. Similar concerns were seen in another study among health care professionals stating that they weren't sure if PLHIV would be open to be mixed with other patients suffering from other diseases as they were accustomed to be treated privately to maintain confidentiality. Furthermore, a few NCD patients mentioned having trouble sitting with PLHIV as they were concerned being recognized and identified as HIV patients and that they may get tuberculosis or other HIV related illness. In addition, the majority of patients were worried about waiting times due to the shortage of available human resources at the clinics (10). This finding demonstrates that stigma around HIV/AIDS still prevails in the community, implying more effort is required in practice to obliterate the stigma at the family, community and national level. Introducing comprehensive integration of HIV and NCD under

one roof will not only address the issue of stigma but will also facilitate effective utilization of limited resources and the available human resource for health.

5.3.3 Perceived strategies to improve integrated services

To enhance the delivery of integrated HIV and Non-Communicable Disease (NCD) services, several strategic initiatives are advised to be implemented. Firstly, to strengthen service delivery there should be targeted investments in infrastructure. This includes expanding and upgrading healthcare facilities to accommodate under one roof services for HIV and NCDs, ensuring accessibility and convenience for patients. Secondly, workforce capacity building is essential, involving continuous training and education of health care workers on the latest updates in NCD management ensuring that they are equipped with the necessary skills to deliver care to patients. Additionally, community engagement and awareness programs is encouraged to promote early detection, treatment adherence, and healthy lifestyle choices among affected populations. The same is found in the study conducted by Miriam Rabkin *et al* in Sub-Saharan Africa which confirmed that comprehensive capacity building is required to build strong multidisciplinary staff which is essential to deliver integrated patient centered care. It further demonstrated that to achieve this, close collaboration is required between the higher education sector which is responsible for teaching institutions that produce health care workers and the health sector which has more up to date knowledge on the skills the health care provider needs on site to provide integrated care(30) Therefore, by implementing these strategies comprehensively, a more integrated and patient-centered approach to HIV and NCDs services will be executed in the CTC resulting in improvement of quality of life for individuals with multi-morbidities.

5.3.4 Supporting elements for delivery of integrated services

In the context of enhancing integrated services for HIV and Non-Communicable Diseases (NCDs), several factors emerge as fundamental for effective implementation and delivery. One among many factors is the existence of well-formed governance from ministry to facility level which are designed to provide oversight, directives and accountability in decision making. These in turn facilitate alignment of policies and regulations to support integration of HIV and NCD care however this factor alone cannot ensure effective implementation of this intervention as

there are many other factors which influence effective integration. Additionally, raising awareness and deepening knowledge of NCDs among healthcare providers is essential to improve their capacity and skills to deliver integrated care that meet the complex needs of patients affected by both HIV and NCDs. The presence of political will, a good institutional culture and effective administrative oversight were seen as enabling factors towards integration (8). Moreover, in a study done in Sub Saharan Africa, a comprehensive awareness on the prevalence of Non-communicable diseases particularly for diabetes and hypertension was observed to be important so as to monitor the increasing trend of co-morbid illnesses among people living with HIV(30). The findings imply that research on strengthening health systems could provide important insights into how to scale up integrated care by evaluating the impact of leadership, governance, and community engagement on the success of implementing integrated HIV and NCD care.

5.4 Strength of the study

1. The study was focused on rural primary health facilities whereby in low- and middle-income countries; they serve as the first point of contact for most individuals seeking health care. Therefore, the study addresses a critical area of healthcare delivery that often faces unique challenges in resource availability, infrastructure, and staffing.
2. It emphasizes the importance of the frontline in health care; health providers and thus ensuring that future interventions are grounded in the realities of service delivery and the needs of those providing care.
3. The study offers concrete strategies for improving integrated services translating research into practice leading to improvements in healthcare delivery.

5.5 Limitation and mitigation

5.5.1 Limitation

The study was prone to social desirability bias where some of the respondents might have provided answers only to have a favorable image to the researcher hence concealing their true opinions on integrative management.

5.5.2 Mitigation

In addressing this limitation, the participants received a thorough explanation of the objective and usefulness of the study from the researcher plus use of probing technique helped to get more information from the respondents on factors affecting the integrated management of HIV and NCDs

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The integration of HIV and NCD services is more beneficial to both service providers and patients despite a few shortcomings that were observed.

The presence of enabling policies and guidelines at the facility level and from the Ministry of health are critical in achieving integrated care as they provide an outline to the providers on how integrated services should be implemented within the care and treatment clinics.

However, it was noted that there was a lack of trained staff at the CTC together with limited financing which affected the availability of medical supplies, equipment and laboratory investigations leading to the suboptimal delivery of integrated HIV and NCD care to the clients of CTC. Furthermore, the presence of substandard buildings lacking privacy and adequate space to provide integrated care to patients was observed.

This study has shed light on the existence of cultural beliefs and ignorance regarding non-communicable diseases and low-income levels among our community members which affects the provision of integrated HIV and NCD services among PLHIV.

6.2 Recommendations

Integration of HIV and NCD care within CTC is shown to be an effective strategy for reducing morbidity and death from NCD related complications, in this regard the following are the recommendations:

1. The management of health facilities in collaboration with implementing partners and local government authority should collaborate together and invest more in the care and treatment clinics for effective integration of HIV and NCD services. The investment should target areas such as capacity building, improvement of infrastructure and procurement of medical supplies such as NCD drugs.
2. Health facilities should work together with other stakeholders including community leaders in engaging the community to raise awareness on NCDS. This can be done through conducting outreach programs to educate the communities and address stigma associated with both HIV and NCDs.
3. The health facility management and community leaders/ organizations should develop strategies to improve financing in the CTC including health insurance for all so as to increase accessibility to care among PLHIV and the overall community.
4. Further research should be done regarding investigating the role of stakeholder involvement and community engagement in promoting successful integration of HIV- NCD services.

REFERENCES

1. WHO. Integrating health services. Tech Ser Prim Heal Care [Internet]. 2018;1–14. Available from: https://www.who.int/docs/default-source/primary-health-care-conference/linkages.pdf?sfvrsn=bfbb4059_2&ua=1%0D
2. Valderas JM, Starfi B, Sibbald B. Understanding Health and Health Services. Ann Fam Med. 2009;357–63.
3. WHO definition of health [Internet]. 2003. Available from: http://www.who.int/about/definition/en/print.html
4. WHO 2020. Global HIV Programme [Internet]. World Health Organization. 2020. p. HIV data and statistics. Available from: https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/hiv/strategic-information/hiv-data-and-statistics%0Ahttps://www.who.int/data/gho/data/themes/hiv-aids/data-on-the-size-of-the-hiv-aids-epidemic%0Ahttps://www.who.int/teams/global-hiv-hepat
5. Nigatu T. Integration of HIV and noncommunicable diseases in health care delivery in low- and middle-income countries. Prev Chronic Dis. 2012;9(5):9–11.
6. United J, Programme N. Responding to the Challenge of Non-communicable Diseases Joint United Nations Programme on HIV / AIDS 1 . NCDs among people living with HIV is an increasing global public health issue Many countries with HIV epidemics are now experiencing growing rates of. :1–6.
7. State M, Session I. Member State Information Session | 28 April 2023. 2023;(April).
8. Watt N, Sigfrid L, Legido-Quigley H, Hogarth S, Maimaris W, Otero-Garcıa L, et al. Health systems facilitators and barriers to the integration of HIV and chronic disease services: A systematic review. Health Policy Plan. 2017;32:iv13–26.
9. Masupe T, Mashalla Y, Seloilwe E, Jibril H, Medhin H. Integrated management of HIV/NCDS: Knowledge, attitudes, and practices of health care workers in Gaborone, Botswana. Afr Health Sci. 2019;19(3):2312–23.

10. Shayo EH, Kivuyo S, Seeley J, Bukenya D, Karoli P, Mfinanga SG, et al. The acceptability of integrated healthcare services for HIV and non-communicable diseases: experiences from patients and healthcare workers in Tanzania. BMC Health Serv Res [Internet]. 2022;22(1):1–12. Available from: https://doi.org/10.1186/s12913-022-08065-4
11. National Malaria Control Program. The United Republic of Tanzania. 2011;(255):1–16.
12. Wroe EB, Kalanga N, Dunbar EL, Nazimera L, Price NF, Shah A, et al. Expanding access to non- - communicable disease care in rural Malawi : outcomes from a retrospective cohort in an integrated NCD – HIV model. 2020;1–9.
13. Mollel GJ, Moshi L, Hazem H, Eichenberger A, Kitau O, Mapesi H, et al. Causes of death and associated factors over a decade of follow - up in a cohort of people living with HIV in rural Tanzania. BMC Infect Dis [Internet]. 2022;1–11. Available from: https://doi.org/10.1186/s12879-021-06962-3
14. Moyo-Chilufya M, Maluleke K, Kgarosi K, Muyoyeta M, Hongoro C, Musekiwa A. The burden of non-communicable diseases among people living with HIV in Sub-Saharan Africa: a systematic review and meta-analysis. eClinicalMedicine [Internet]. 2023;65:102255. Available from: https://doi.org/10.1016/j.eclinm.2023.102255
15. Badacho AS, Mahomed OH. Facilitators and barriers to integration of noncommunicable diseases with HIV care at primary health care in Ethiopia: a qualitative analysis using CFIR. Front Public Heal. 2023;11(December).
16. De Foo C, Shrestha P, Wang L, Du Q, García Basteiro AL, Abdullah AS, et al. Integrating tuberculosis and noncommunicable diseases care in low- And middle-income countries (LMICs): A systematic review. Vol. 19, PLoS Medicine. 2022. 1–40 p.
17. Adeyemi O, Lyons M, Njim T, Okebe J, Birungi J, Nana K, et al. Integration of non- - communicable disease and HIV / AIDS management : a review of healthcare policies and plans in East Africa. 2021;1–9.
18. Ameh S, Klipstein-grobusch K, Lucia D, Kahn K, Tollman SM. Quality of integrated chronic disease care in rural South Africa : user and provider perspectives. 2017;(September 2016):257–66.

19. Adeniran E, Quinn M, Wallace R, Walden RR, Labisi T, Olaniyan A, et al. A scoping review of barriers and facilitators to the integration of substance use treatment services into US mainstream health care. Drug Alcohol Depend Reports. 2023;7(January):100152.
20. Goudge J, Chirwa T, Eldridge S, Gómez-Olivé FXF, Kabudula C, Limbani F, et al. Can lay health workers support the management of hypertension? Findings of a cluster randomised trial in South Africa. BMJ Glob Heal. 2018;3(1):1–12.
21. Badacho AS, Mahomed OH. Facilitators and barriers to integration of noncommunicable diseases with HIV care at primary health care in Ethiopia : a qualitative analysis using CFIR. 2023;(December):1–12.
22. Hout MC Van, Zalwango F, Akugizibwe M, Chaka MN, Birungi J, Okebe J, et al. Implementing integrated care clinics for HIV-infection , diabetes and hypertension in Uganda (INTE-AFRICA): process evaluation of a cluster randomised controlled trial. 2023;0:1–14.
23. Badacho AS, Mahomed OH. Sustainability of integrated hypertension and diabetes with HIV care for people living with HIV at primary health care in South Ethiopia: implication for integration. BMC Prim Care. 2023;24(1):1–8.
24. Haruna T, Somba M, Siril H, Mahiti G, August F, Minja A, et al. Factors hindering integration of care for noncommunicable diseases within HIV care services in Dar es Salaam, Tanzania: The perspectives of health workers and people living with HIV. PLoS One. 2021 Aug 1;16(8 August).
25. Shayo EH, Murdoch J, Kiwale Z, Bachmann M, Bakari M, Mbata D, et al. Management of chronic conditions in resource limited settings: multi stakeholders' perception and experiences with receiving and providing integrated HIV, diabetes and hypertension services in Tanzania. BMC Health Serv Res [Internet]. 2023;23(1):1–13. Available from: https://doi.org/10.1186/s12913-023-10123-4
26. Sanga ES, Mukumbang FC, Mushi AK, Lerebo W, Zarowsky C. Understanding factors influencing linkage to HIV care in a rural setting, Mbeya, Tanzania: qualitative findings of a mixed methods study. BMC Public Health. 2019;19(1):1–15.

27. Hennink M, Kaiser BN. Sample sizes for saturation in qualitative research: A systematic review of empirical tests. Soc Sci Med [Internet]. 2022;292:114523. Available from: https://doi.org/10.1016/j.socscimed.2021.114523

28. Forero R, Nahidi S, De Costa J, Mohsin M, Fitzgerald G, Gibson N, et al. Application of four-dimension criteria to assess rigour of qualitative research in emergency medicine. BMC Health Serv Res. 2018;18(1):1–11.

29. Gooden TE, Mkhoi ML, Mdoe M, Mwalukunga LJ, Senkoro E, Kibusi SM, et al. Barriers and facilitators of people living with HIV receiving optimal care for hypertension and diabetes in Tanzania: a qualitative study with healthcare professionals and people living with HIV. BMC Public Health. 2023;23(1):1–14.

30. Rabkin M, De Pinho H, Michaels-Strasser S, Naitore D, Rawat A, Topp SM. Strengthening the health workforce to support integration of HIV and noncommunicable disease services in sub-Saharan Africa. Aids. 2018;32(May):S47–54.

APPENDICES

Appendix 1: Consent Form

Appendix 1.1: Consent Form- English version

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES:
DIRECOTORATE OF REASEACRH AND PUBLICATION

Introduction

Greetings, I am student enrolled in the Masters of Public Health program at Muhimbili University of Health and Allied Sciences, School of Public Health and Social Science. I am the researcher for the study focused on exploring the factors affecting the integration of HIV and non-communicable diseases (NCDs) among rural primary health care facilities in Mkuranga District Council. This consent form may include unfamiliar terms, so please feel free to request clarification as we go through the information. I am here to stop and provide explanations if needed. Should you have any questions, do not hesitate to ask, and I will provide the necessary clarification**.**

Users: The individuals participating in the study include healthcare providers at the CTC (clinicians or nurses) responsible for directly managing patients; selected based on their extensive experience in patient care. Additionally, key members of hospital management team; Medical Officer in Charge and Matron, who are directly engaged in the day-to-day operations of the facilities, are part of the study. Your selection is based on your experiences which will significantly contribute to our understanding on the factors affecting the integration of HIV and NCDs management. Involvement in this research is completely voluntary, meaning it is your decision to participate or not, and this choice will not impact your job, work-related evaluations or reports. The interview is expected to take a maximum of one hour.

Purpose of the study: The study aims to explore the factors affecting integration of HIV and NCD services among rural primary health care facilities in Mkuranga District council. Information gained will help us to know what is affecting the progress of integrative services to notify the stakeholders on the best approaches to enhance service delivery within the facilities so as to ensure increased trend of integrative services for these chronic conditions.

Study procedures: In-depth interviews with the medical professionals at CTC and key members of hospital management will be conducted.

Risk, benefits and confidentiality: Participating in this study poses no risks to you, and all the information gathered will be kept confidential. You will receive feedback of the interview through submission of report findings to the office of the Medical officer in charge of the respective facility. The information obtained may help to address identified gaps hindering implementation of integration in the facility, leading to improved health benefits for clients, particularly in terms of enhanced treatment outcomes and increased efficiency during management.

Contacts Information: In case of further queries or questions contact me on mobile number +255714373615 or through email lilyminzi263@gmail.com. If you have questions about your rights as a participant, you may contact Dr Nahya Mohamed, Chairperson of the Research and Publications Committee, MUHAS. P.O. Box 65001, Dar es Salaam-Tanzania, Tel +2552150302-6

Statement of Consent: I have been informed of the study's objectives and design, and I accept that participation in it is entirely voluntary and that there won't be any consequences if I decline. I can withdraw at any moment. I have a right to be aware of the study's findings. I willingly give my consent to participate in this study.

Signature of the participant……Dates: .....

Name of investigator: ..... Signature: ..... Dates: .....

Appendix 1.2: Consent Form- Kiswahili version

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

DIRA YA UTAFITI NA UCHAPISHAJI

Utangulizi: Habari, mimi ni mwanafunzi wa shahada ya Uzamili katika maswala ya Afya ya Umma kutoka chuo kikuu cha afya na sayansi shirikishi Muhimbili, Kitengo cha Afya ya Umma na Sayansi ya Jamii.

Ninatumikia kama mtafiti kwa utafiti unaolenga kuchunguza ujumuishaji wa huduma za VVU na magonjwa yasioambukiza miongoni mwa vituo vya afya ngazi ya msingi katika wilaya ya Mkuranga. Ikiwa una maswali au changamoto yoyote, usisite kuuliza, nami nitatoa ufafanuzi unaohitajika.

Washiriki: Washiriki wa utafiti huu ni watoa huduma yaani madaktari na wauguzi wanaofanya kazi kitengo cha kliniki za huduma na tiba za wateja wanaoshi na maambukizi ya VVU, wanaowajibika moja kwa moja kuhudumia wagonjwa. Kwa kuongezea, wajumbe wa usimamizi wa hospitali; Mganga Mfawidhi na Matroni, ambao wanashiriki moja kwa moja katika shughuli za kila siku za vituo, wanashiriki pia katika utafiti huu. Ushiriki wako katika utafiti huu unategemea uzoefu wako ambao utachangia kwa kiasi kikubwa kuelewa kwetu juu ya ujumuishaji wa huduma za VVU na magonjwa yasioambukiza. Kushiriki katika utafiti huu ni hiari, na uamuzi huu hautaathiri kazi yako, tathmini au ripoti za kazi. Inatarajiwa kwamba mahojiano yatakuchukua muda wa ndani ya lisaa moja.

Lengo la utafiti: Utafiti unalenga kuchunguza na kutathmini mambo yanayoathiri ujumuishaji wa huduma za VVU na magonjwa yasioambukiza katika vituo vya afya ngazi ya msingi ndani wilaya ya Mkuranga. Taarifa zitakazopatikana zitasaidia kujua ni nini kinachozuia maendeleo ya ujumuishaji wa huduma za VVU na magonjwa yasioambukiza. Lengo ni kutoa taarifa kwa wadau juu ya namna ya kuboresha utoaji wa huduma katika vituo ili kuhakikisha ongezeko la mwenendo wa huduma za ujumuishaji wa magonjwa ya muda mrefu.

Taratibu za Utafiti: Mahojiano ya kina na watoa huduma wa afya katika kliniki za huduma na tiba za wateja wanaoshi na maambukizi ya VVU pamoja na wajumbe wa usimamizi wa hospitali

Madhara, faida na usiri: Kushiriki katika utafiti huu hakukuweki katika hatari, na taarifa zote zitazokusanywa zitahifadhiwa kwa siri. Hata hivyo, mtapokea mrejesho wa mahojiano kupitia kuwasilisha matokeo ya ripoti kwa ofisi ya Mganga Mfawidhi wa kituo husika. Taarifa zitakazopatikana zinaweza kusaidia kushughulikia mapengo yaliyobainishwa yanayokwamisha utekelezaji wa ujumuishaji wa magonjwa haya katika vituo na kusababisha kuboreshwa kwa huduma kwa manufaa ya kiafya kwa wateja, hasa kwa upande wa matokeo ya matibabu yaliyoimarishwa na kuongeza ufanisi wakati wa matibabu.

Mawasiliano: Kwa mawasiliano zaidi, wasiliana nami kwa nambari ya simu +255714373615 au kupitia barua pepe lilyminzi263@gmail.com. Ikiwa unayo maswali kuhusu haki zako kama mshiriki, unaweza kupiga simu kwa Dk Nahya Mohamed, Mwenyekiti wa Kamati ya Utafiti na Uchapishaji, MUHAS. S. L. P. 65001, Dar es Salaamu-Tanzania, Tel +2552150302-6.

Tamko la Idhini: Nimefahamishwa na kuelewa kuhusu malengo na muundo wa utafiti, na ninakubali kwamba kushiriki katika utafiti huo ni kwa hiari kabisa na kwamba hakutakuwa na matokeo yoyote nikikataa kushiriki. Niko huru kujiondoa wakati wowote na pia nina haki ya kufahamu matokeo ya utafiti. Ninakubali kwa hiari yangu kushiriki katika utafiti huu.

Saini ya mshiriki…….. Tarehe: …….....

Jina la mtafiti: ..... Saini: ..... Tarehe: .....

Appendix 2: Interview guide

Appendix 2.1: Interview guide- English version

TITTLE: INTEGRATION OF HIV AND NON-COMMUNICABLE DISEASES SERVICES AMONG RURAL PRIMARY HEALTH CARE FACILITIES IN MKURANGA DISTRICT COUNCIL

The researcher will begin by introducing him or herself and thanking the participants for their willingness to take part in the study. As a study participant, it is vital to notify you that our conversation will be recorded. Any information gathered will be handled with utmost discretion and solely utilized for the purpose of this study. Our objective is to explore the factors affecting integration of HIV and NCD services among rural Primary health facilities. Prior to conducting the in depth interview, the researcher will seek the permission from the participants.

Basic participant's information:

Job title:
Duration of employment:
Duration in current position:
Education level:
Name of facility:
Researcher's name:
Time of initiation of interview:
Time of completion of interview:

Questions:

1. **Understanding of Non-communicable diseases**

Question: Could you elaborate on your understanding of Non-Communicable Diseases (NCDs), particularly those common among people living with HIV?

- Probe: How are the NCDs managed within the context of HIV care at your clinic?

2. Perception and experience of health provider towards integration of services

Question: What is your attitude/personal views regarding integration of HIV-NCD services?

Question: What are your experiences regarding the integration of HIV and NCD services?

Question: From your perspective, how would integrated services improve care for a patient with coexisting HIV and NCD illnesses?

- Probe: on quality of care to patients
- Probe: on reduced costs to patients

Question: From your perspective, how would integration improve efficiency of services provided at the CTC?

- Probe: on cost-effectiveness to the facility
- Probe: turn-around time for patients within the facility
- Probe: on crowding of clients within the clinic

Question: From your perspective, how does stigma and discrimination affect integrative services?

3. Availability of Resources and the Integration of services

Question: How does human resource availability affect integration of HIV and NCD services?

- Probe: about how availability of human resources facilitates the integration of HIV and NCD services
- Probe: about how availability of human resources hinders the integration of HIV and NCD services

Question: How does the working shift at care and treatment clinics affect implementation of integrative services?

- Probe: how do the staff at CTC work together in providing care

Question: How does the work load of health care provider at CTC affect integrative services?

- Probe: time spent to provide services per patient

Question: How does the waiting time/turn-around time of patients at CTC affect integrative services?

Question: How does the availability of funding affect integrative services at CTC?

- Probe: on availability of motivation/ extra allowances to staff
- Probe: on availability of equipment /supplies at CTC

Question: To what extent is the health information system accessible in care and treatment clinics to facilitate integrative services?

4. Integration of services and working environment

Question: How does the available infrastructure example buildings affect the implementation of integrative service?

Question: How does leadership and governance affect integrative services?

Question: How does the existing training and capacity building for health providers affect the effectiveness of integrating HIV and NCD services at the clinic?

Question: How, the guidelines and policies implemented within the health facility affect HIV and NCD integrative services?

5. From your perspective, what are the key benefits of integrating HIV and NCD services
    - Probe: benefits for health workers
    - Probe: benefits for patients
    - Probe: benefits for the health facility
6. Based on your experience, what strategies would you recommend to improve integration of HIV and NCD services?

Closing remarks:

1. Do you have any additional information you would like to share?
2. Thank you for your time.

Appendix 2.2: Interview guide- Swahili version

JINA LA TAFITI: UJUMUISHAJI WA HUDUMA ZA VVU NA MAGONJWA YASIOAMBUKIZA MIONGONI MWA VITUO VYA AFYA NGAZI YA MSINGI KATIKA WILAYA YA MKURANGA

Mtafiti ataanza kwa kujitambulisha na kuwashukuru washiriki kwa utayari wao wa kushiriki katika utafiti. Ni muhimu kukujulisha, kama mshiriki wa utafiti huu, kwamba mazungumzo yetu yatarekodiwa. Taarifa yoyote nitakayo ikusanya kutoka kwako itashughulikiwa kwa usiri na kutumika kwa madhumuni ya kuwezeshaa utafiti huu pekee. Lengo letu ni kutafiti mambo yanayoathiri ujumuishaji wa huduma za VVU na magonjwa yasiyo ambukiza miongoni mwa vituo vya afya ngazi ya Msingi. Tafadhali naomba ridhaa ya maandishi ya kushiriki katika utafiti huu.

Taarifa za Mshiriki:	
Taaluma ya mtoa huduma:	
Muda aliohudumu katika kazi tangu kuajiriwa:	
Muda katika nafasi ya sasa:	
Kiwango cha elimu:	
Jina la kituo:	
Jina la mtafiti:	
Muda wa kuanza kwa mahojiano:	
Muda wa kukamilika kwa mahojiano:	

Maswali;

1. **Ufahamu wa magonjwa yasiyoambukiza**

   Swali: Je, unaweza kufafanua juu ya uelewa wako wa magonjwa yasiyo ya kuambukiza, hasa yale yanayotokea kwa watu wanaoishi na VVU?

- Swali la uchunguzi: Je, magonjwa haya yanashughuliwa vipi katika muktadha wa matibabu wa VVU kwenye kliniki yako?

2. Mtazamo na uzoefu wa watoa huduma wa afya kuelekea huduma za ujumuishaji

Swali: Ni nini mtazamo wako kuhusu ujumuishaji wa huduma za VVU na magonjwa yasioambukiza?

Swali: Je, uzoefu wako ukoje kuhusu ujumuishaji wa huduma za VVU na magonjwa yasiyoambukiza?

Swali: Kwa mtazamo wako, ni namna gani huduma jumuishi zinaweza boresha huduma kwa mgonjwa aliye na VVU na magonjwa yasiyoambukiza?

- Swali la uchunguzi: juu ya ubora wa huduma kwa mgonjwa
- Swali la uchunguzi: juu ya kupunguza gharama kwa wagonjwa

Swali: Kwa mtazamo wako, huduma jumuishi zinawezaje kuboresha ufanisi wa huduma zinazotolewa katika kliniki?

- Swali la uchunguzi: juu ya ufanisi wa gharama kwa kituo
- Swali la uchunguzi: muda wa kurejea kwa wagonjwa ndani ya kituo
- Swali la uchunguzi: juu ya msongamano wa wateja ndani ya kliniki

Swali: Kwa mtazamo wako, unyanyapaa na ubaguzi unaathiri vipi ujumuishaji wa huduma za VVU na magonjwa yasioambukiza?

3. Upatikanaji wa rasilimali na ujumuishaji wa huduma

Swali: Je, upatikanaji wa rasilimali watu unaathiri vipi ujumuishaji wa huduma za VVU na Magonjwa yasiyoambukiza?

- Swali la uchunguzi: jinsi upatikanaji wa rasilimali watu unavyowezesha ujumuishaji wa huduma za VVU na magonjwa yasioambukiza
- Swali la uchunguzi: jinsi upatikanaji wa rasilimali watu unavyozuia ujumuishaji wa huduma za VVU na magonjwa yasioambukiza

Swali: Je, mpangilio wa zamu za wafanyakazi katika kliniki unaathiri vipi utekelezaji wa huduma za ujumuishaji?

- Swali la uchunguzi: ni namna gani wafanyakazi katika kliniki wanafanya kazi pamoja katika kutoa huduma

Swali: Je mzigo wa kazi kwa mtoa huduma wa afya katika kliniki unaathiri vipi huduma za ujumuishaji?

- Swali la uchunguzi: muda unaotumika kutoa huduma kwa mgonjwa moja

Swali: Je, ni namna gani muda wa kusubiri au muda wa rejea kwa wagonjwa katika kliniki unaathiri vipi huduma za ujumuishaji?

Swali: Je, upatikanaji wa ufadhili unaathiri vipi ujumuishaji wa huduma za VVU na magonjwa yasioambukiza?

- Swali la uchunguzi: upatikanaji wa motisha au posho kwa wafanyakazi
- Swali la uchunguzi: upatikanaji wa vifaa tiba katika kliniki

Swali: Je, ni kwa kiwango gani mfumo wa taarifa za afya unapatikana katika kliniki ili kuwezesha huduma za ujumuishaji?

4. Ujumuishaji wa huduma na mazingira ya kazi

Swali: Je, miuondombinu iliopo mfano majengo yanaathiri vipi utekelezaji wa ujumuishaji wa huduma za VVU na Magonjwa yasiyoambukiza kwenye kliniki yako?

Swali: Je, ni namna uongozi na utawala wa hospitali unaathiri vipi ujumuishaji wa huduma?

Swali: Je, ni namna gani fursa za mafunzo na kuwajenga uwezo watoa huduma wa afya zinaathiri vipi ufanisi wa ujumuishaji wa huduma za VVU na Magonjwa yasioambukiza?

Swali: Ni namna gani miongozo na sera zinazotekelezwa katika kituo chenu huathiri ujumuishaji wa huduma za VVU na magonjwa yasioambukiza?

5. Kwa mtazamo wako kuna faida gani ya ujumuishaji wa huduma za VVU na magonjwa yasiyo ambukiza?

Swali la uchunguzi: faida kwa watoa huduma wa afya

Swali la uchunguzi: faida kwa wagonjwa

Swali la uchunguzi: faida kwa kituo cha afya

6. Je, kwa uzoefu wako, ni mikakati gani inaweza kutekelezwa ili kuboresha huduma za ujumuishaji katika kituo chako?

Kufunga Mahojiano:

1. Je, una maelezo yoyote ya ziada ambayo ungependa kunishirikisha kuwezesha utafiti huu

3. Asante kwa muda wako.

Appendix 3: Ethical Clearances



UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATIONS



Ref. No.DA.282/298/01.C/2216 Date: 29/04/2024

MUHAS-REC-04-2024-2216
LILIAN LIPANGALA MINZI
SHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: INTEGRATION OF HIV AND NON-COMMUNICABLE DISEASES SERVICES AMONG PRIMARY HEALTH CARE FACILITIES IN MKURANGA DISTRICT COUNCIL

Reference is made to the above heading,

I am pleased to inform you that the Chairperson has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

APPROVAL DATE: 29/04/2024
EXPIRATION DATE OF APPROVAL: 29/04/2025

STUDY DESCRIPTION:
Purpose:
The purpose of this qualitative phenomenological study design is to explore the factors affecting integration of HIV-NCD services among rural Primary health care facilities in Mkuranga district council.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided: https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%2015624.pdf and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain Data Transfer Agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain Material Transfer Agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country.
8. Apply for and obtain permission to publish the results from National Institute for Medical Research. The application should be before submitting to a publisher and not concurrently through the email publications@nimr.or.tz.
9. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
10. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
11. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website https://drp.muhas.ac.tz/.

Dr. Nahya Salim Masoud,
Chairperson, MUHAS Research and Ethics Committee

Muhimbili University of Health and Allied Sciences
DIRECTOR
Research,
Publications &
Innovations
Box 65001

Appendix 4: Introduction Letter

UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – POSTGRADUATE STUDIES

In reply quote;
Ref. No. HD/MUH/T.643/2023

08th May, 2024

District Executive Director,
Mkuranga District,
P.O.Box 10,
MKURANGA-PWANI

Re: INTRODUCTION LETTER OF LILIAN LIPANGALA MINZI

The bearer of this letter is Lilian Lipangala Minzi (HD/MUH/T.643/2023), a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing Masters of Public Health.

As part of her studies she intends to do a study titled: **"Intergration of HIV and Non-Commuicable Diseases Services Among Primary Health Care Facilities In Mkuranga District Council."** The research has been approved by the Chairman of University Senate.

Kindly provide her the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.

Ms. Victoria Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES

c.c. Lilian Lipangala Minzi

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1015; Direct Line:+255-22-2151378;Telefax:+255-22-2150465;E-mail:dpgs@muhas.ac.tz;Web:https://www.muhas.ac.tz

Appendix 5: Permission Letter

THE UNITED REPUBLIC OF TANZANIA

PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

MKURANGA DISTRICT COUNCIL

In reply please quote:
Ref. No. MDC/I.10/12/VOL. V/38

17th May, 2024

For Director,
Department of Community Health,
Muhimbili University of Health and
Allied Sciences,
P. O. Box 65001,
DAR ES SALAAM.

REF: INTRODUCTION LETTER FOR YOUR STUDENT
LILIAN LIPANGALA MINZI

Reference is made to your letter with Ref. No. HD/MUH/T.643/2023 of dated 08th May, 2024 with the above captioned heading.

2. It is to inform you that, the named student above has been accepted to undertake Research titled ***"Integration of HIV and Non- Communicable Services Among Primary Health Care Facilities In*** the Mkuranga District Council. ***A Study of Mkuranga Hospital, St. Vicent Health Centre, and Mkamba in Mkuranga District."*** So inform him to come.

Yours faithfully,

Devotha Isisha
For: DISTRICT EXECUTIVE DIRECTOR
MKURANGA

MKURANGA
For: EXECUTIVE DIRECTOR
DISTRICT COUNCIL

C.C: District Executive Director,
P.O. Box 10,
MKURANGA - See in file

* District Medical Officer - Mkuranga for your cooperation,

* Lilian L. Minzi – Please Report the District Medical Officer In Mkuranga DC

District Executive Director's Office, Mkuranga District Council, P.O. Box 10, Mkuranga, Tel: +255 232-402738, Fax +255 232402706, Email: ded@mkurangadc.go.tz, Tovuti: www.mkurangadc.go.tz