PROCESS EVALUATION ON ADHERENCE TO THE NATIONAL NUTRITIONAL GUIDELINE FOR PEOPLE LIVING WITH HIV CARE AND TREATMENT CENTERS, DAR ES SALAAM, TANZANIA.

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CERTIFICATION.

The undersigned certifies that they have read and hereby recommends for acceptance by the University of Muhimbili Health and Allied Sciences a dissertation entitled **"Evaluation on Adherence to the National Nutritional Guideline for Nutrition Care and Support of PLHIV Attending CTC Clinics in Dar Es Salaam, Tanzania"** in partial fulfillment of the requirements for the degree of Master of Science (Project Management, Monitoring and Evaluation in Health) of Muhimbili University of Health and Allied Sciences.

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Date: _____

DECLARATION AND COPYRIGHT

I, **Felistar William Mwakasungura**, declare that this dissertation is my own original work, and that it has not been submitted for a similar degree in any other University.

Signature …….Date……

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My heartfelt thanks go to my family, whose love and encouragement have been a constant source of strength. To my parents, for their endless support and belief in me; and to my friends, for their understanding and patience during the many hours spent on this project.

DEDICATION.

This dissertation is dedicated to my beloved family. To my parents Mrs. Scola Mwakasungula, Mr. Erasmus Mallya and Mrs. Agripina Mallya, whose unwavering support, love, and encouragement have been my foundation. Your sacrifices and faith in me have been a constant source of inspiration and motivation throughout my academic journey. To my siblings, Morgan, Monica and Abel your endless support, understanding, and for always being there when I needed you. Your encouragement and faith in my abilities have helped me persevere. Thank you all for being my pillars of strength. This accomplishment is as much yours as it is mine.

ABSTRACT.

Background: The interplay between HIV and malnutrition presents a critical public health concern, particularly in sub-Saharan Africa where the burdens are significantly high. In Tanzania, the HIV prevalence stands at 4.9% among adults, coupled with a noticeable rate of malnutrition among those living with HIV. Despite the availability of nutritional guidelines for People Living with HIV (PLHIV), there is a notable gap in data and evidence on adherence to these guidelines in Care and Treatment Centers (CTCs). This study aims to evaluate the adherence to the National Guidelines for Nutrition Care and Support of PLHIV in CTC clinics in Dar es Salaam, Tanzania.

Objective: To evaluate adherence to the National Guidelines for Nutrition Care and Support of People living with HIV attending in CTC clinics in Dar es Salaam and identifying factors influencing it.

Methods: An explanatory sequential mixed method design was used, encompassing PLHIV, health facility administrators, and healthcare providers in CTC Clinics in Dar es Salaam. Data collection was an observational checklist, structured questionnaire interview and in-depth interview to assess the level of adherence to the guideline, evaluate the factors influencing adherence and identifying the facilitators and challenges respectively. Descriptive and inferential statistical analyses was done to summarize data and explore the associations between adherence levels and multiple determinants. Content analysis to identify codes and patterns was employed in qualitative analysis.

Results: Out of 485 approached participants, 478 were included. The study included 25 CTCs, predominantly dispensaries 15(60%), with an average client volume of 2322. Staff allocation met minimum requirements in 19(76%) clinics, yet 16(64%) clinics lacked adequately trained staff. Supervision and feedback were deficient in 15(60%) facilities, despite widespread availability of 24(96%) weighing scales and 23(92%) stadiometers, while 17(68%) clinics lacked MUAC tapes. Only 93 out of 478 PLHIV (19.46%) adhered fully to nutritional

guidelines. Anthropometric assessments were universal 478(100%), but only 5(1%) participants received micronutrient supplements. Other areas, such as clinical nutritional assessments 325(68%) and nutrition counseling 244(51%), showed varied adherence rates across facility types. Multivariate analysis identified higher education (AOR=5.08, p=0.019) and attendance at referral hospitals (AOR=8.23, p=0.032) as significantly associated with guideline adherence. Conversely, nurse attendance (AOR=0.34, p=0.038), adequate staffing (AOR=0.31, p=0.010), and urban residence (AOR=0.47, p=0.009) correlated negatively. Facilitators included consistent training, supportive leadership promoting guideline adherence, and patient education sessions enhancing nutritional understanding. Barriers comprised financial constraints affecting supplement distribution, high staff turnover disrupting continuity of care, and poor documentation practices impeding effective monitoring.

Conclusion: The study reveals significant gaps in adherence to national nutritional guidelines among people living with HIV in Dar es Salaam. Despite robust follow-up care and anthropometric assessments, the provision of essential micronutrient supplements is severely lacking. Variations in adherence across healthcare facilities suggest that resource distribution, staff training, and facility capabilities are critical factors. Additionally, socio-demographic elements such as education levels and geographical location further influence adherence outcomes, highlighting complex challenges in managing patient health.

Recommendation: Continuous training for healthcare providers ensures adherence to nutritional guidelines. Strengthened resource allocation across health facilities improves adherence levels. Patient education integrated into routine care emphasizes nutrition's role. Addressing systemic barriers ensures consistent resource availability. Improved data quality enhances patient management.

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LIST OF ABBREVIATIONS.

AOR	Adjusted Odds Ratio.
ART	Antiretroviral Therapy.
ARVs	Antiretrovirals.
CL	Confidence Interval.
COR.	Crude Odds Ratio.
CTC	Care and Treatment Centre.
CVD	Cardiovascular Diseases.
DF	Degree of Freedom.
FANTA	Food and Nutrition Technical Assistance.
HCP	Health Care Providers.
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome.
LMICs	Low- and Middle-Income Countries.
NACS	Nutritional Assessment, Counselling, and Support.
NASHCoP	National AIDS STIs and Hepatitis Control Programme.
OR	Odds Ratio.
PLHIV	People Living With HIV.
PMTCT	Prevention of Mother to Child Transmission.
TACAIDS	Tanzania Commission for AIDS.
TDHS	Tanzania Demographic Health Survey.
TFNC	Tanzania Food and Nutrition Centre.

SDG	Sustainable Development Goals.
UNAIDS	United Nations Programme on HIV/AIDS.
USAID	United States Agency International Development.
WHO	World Health Organization.

DEFINITION OF TERMS.

Malnutrition is an imbalance in dietary intake that can bring about undernutrition, overweight or obesity (1).

Nutritional assessment: is a detailed, systematic evaluation of a patient's nutritional status (2).

CD4 count: A laboratory test that measures the number of CD4 T lymphocytes (CD4 cells) in a sample of blood and normal CD4 counts are anywhere between 500-1,500 cells/ µL(3).

Viral Load: A measure of the amount of HIV in the body and reported as the number of HIV RNA copies per milliliter of blood(3).

Opportunistic infections: are infections that occur more often or are more severe in people with weakened immune systems(4).

Cognitive impairment: is when a person has trouble remembering, learning new things, concentrating, or making decisions that affect their everyday life(5).

Asymptomatic: a person is affected by a condition but has no showing symptoms(6).

Adherence to guideline: can be defined as the proportion of patients treated according to a guideline recommendation, which often represents evidence-based or best practice care(7).

Iron Deficiency Anemia: is a condition where a lack of iron in the body leads to fewer red blood cells(8).

Non-Communicable Diseases: are diseases that are not spread through infection or through other people, but are typically caused by unhealthy behaviors(9).

Macro-nutrients: are the nutrients that your body needs in large amounts, which include fat, carbohydrates, and protein(8).

Micro-nutrients: are vitamins and minerals needed by the body in very small amounts(8).

1.0 INTRODUCTION

1.1 Background

HIV (Human Immunodeficiency Virus) continues to be a serious worldwide health issue and as of 2022 about 39 million people were living with the disease (10) It is characterized by immune system suppression, which makes it more energy-intensive for malnourished HIV patients to fight infection, resulting into additional nutritional challenges (11).The HIV and malnutrition comorbidity, especially in low- and middle-income countries (LMICs), presents a substantial challenge. An estimated 66% of 39 million people living with HIV(PLHIV) globally in 2022 were from sub–Saharan Africa(3), additionally the prevalence of malnutrition in sub-Saharan countries is 21% (12). Furthermore, the prevalence of malnutrition among People living with HIV (PLHIV) is 23.7% (13).

The interaction between HIV and malnutrition is a vicious cycle, HIV can increase nutritional needs while simultaneously diminishing the body's ability to meet them(14). HIV affects the body's metabolism, which in turn requires more energy(15). HIV is frequently associated with decreased food intake because of symptoms such as oral thrush/ulcer, painful swallowing and nausea(16). Compared to HIV negative people, asymptomatic HIV positive people need 10% higher energy consumption and for HIV negative 20-30% higher energy consumption(17). This weakens the body making an impact on the immune system of the body which has already been impaired by HIV infection(15).

Nutritional care together with antiretroviral medication (ART) can enhance nutritional health and adherence to medication(18). Concerns regarding the nutritional health of PLHIV remain, despite significant reductions in morbidity and mortality brought about by ART alone(19). Efforts to address these nutrition disparities are hindered by a global shortage of health workers with nutritional competencies and skills to offer them specialized care (20), with the deficit most pronounced in Sub Saharan Africa(21). This lack of access to vital nutrition serves intensifies the malnutrition problem among those living with HIV (19). One in ten among PLHIV attending Care and Treatment Center (CTC) clinics undernourished, 18.4% being overweight and 8% being categorized as obese (18).

In Tanzania, HIV remains to be a substantial public health concern with the prevalence among adults at 4.9% (22).The prevalence of malnutrition among PLHIV attending CTC is 19.4% (23). The Tanzanian government has demonstrated commitment to combating both HIV and malnutrition. This is evident through strategies and guidelines including the *"National Guidelines for Nutrition Care and Support for people living with HIV" from 2003 and 2009*, and the *"Health Sector HIV/AIDS strategic Plan" from 2013* (14). Key bodies like the Tanzania Commission for AIDS (TACAIDS) and the National AIDS STI and Hepatitis control Program (NASHCoP) have been pivotal in implementing these strategies. They ensure the establishment and smooth operation of care and Treatment centers, prevention programs for mother-to-child transmission, and nationwide HIV prevention campaigns (24).

The National HIV/AIDS council Strategic Framework 2011-2015 highlights the importance of promoting healthy eating habits and leading an optimistic lifestyle are essential components of HIV care and therapy. In 2016, a national guideline for Nutrition Care and Support of people with HIV was published (14), with the aim of coordinating nutrition programming and support services and providing relevant, consistent, and current information on nutrition care for those living with HIV. The objectives were to provide guidance for nutrition care and support for people with HIV in different groups, provide a framework for planning, implementing and monitoring and evaluation of nutrition care and support for people with HIV, providing knowledge and skills and lastly to render recommendations on the continuum of care for HIV-positive malnourished individuals at the community and medical facility levels. (14).

The guideline targeted policy makers, program managers, counselors, service providers, caregivers, journalists, communication specialists and trainers in the PMTCT, home based care and Reproductive and Child health services programs. It requires any service provider working with people with HIV to provide a minimum nutrition package which has nutritional assessment, nutrition education and counselling, therapeutic and supplementary feeding and referral to follow up care and other needed services such as food security and social safety net program. To strengthen the nutrition care and support for people with HIV proper implementation of the guideline should be applied.

Despite the comprehensive strategies in place, the dual burden of the disease is still prominent. This stains efforts to address nutritional and health challenges among PLHIV attending CTCs, and therefore affects efforts towards the elimination of HIV/AIDS in line with the 95-95-95(25). Evidence of adherence of these guidelines and other efforts at the CTC level is not available. This study therefore aims at evaluating the adherence level to the nutrition care and support guideline and identifying the facilitators and challenges in adhering to the guideline.

1.2 Problem statement.

HIV continues to be a major global public health issue impacting 40.4 million lives so far (26). By the end of 2022, about 630,000 people died from HIV-related causes globally(10). Nearly two third of the global HIV-positive population resides in sub-Saharan Africa, with millions affected worldwide (10). Despite various interventions, undernutrition has remained an important challenge and a factor behind morbidity and mortality PLHIV (11). The prevalence of undernutrition among HIV adults in sub–Saharan Africa is 23.72% (27), a higher burden compared to the general population, and even higher compared to other regions.

PLHIV are more susceptible to undernutrition through different pathways. HIV is frequently associated with decreased food intake because of opportunistic infections (OIs) of the mouth causing painful swallowing. They further succumb to food insecurity, depression or cognitive impairment, nausea from medicine, and other factors (28). Furthermore, undernutrition weakens the immune system and ultimately promotes replication of HIV infection. The dual burden is interwoven together making a vicious cycle (29).

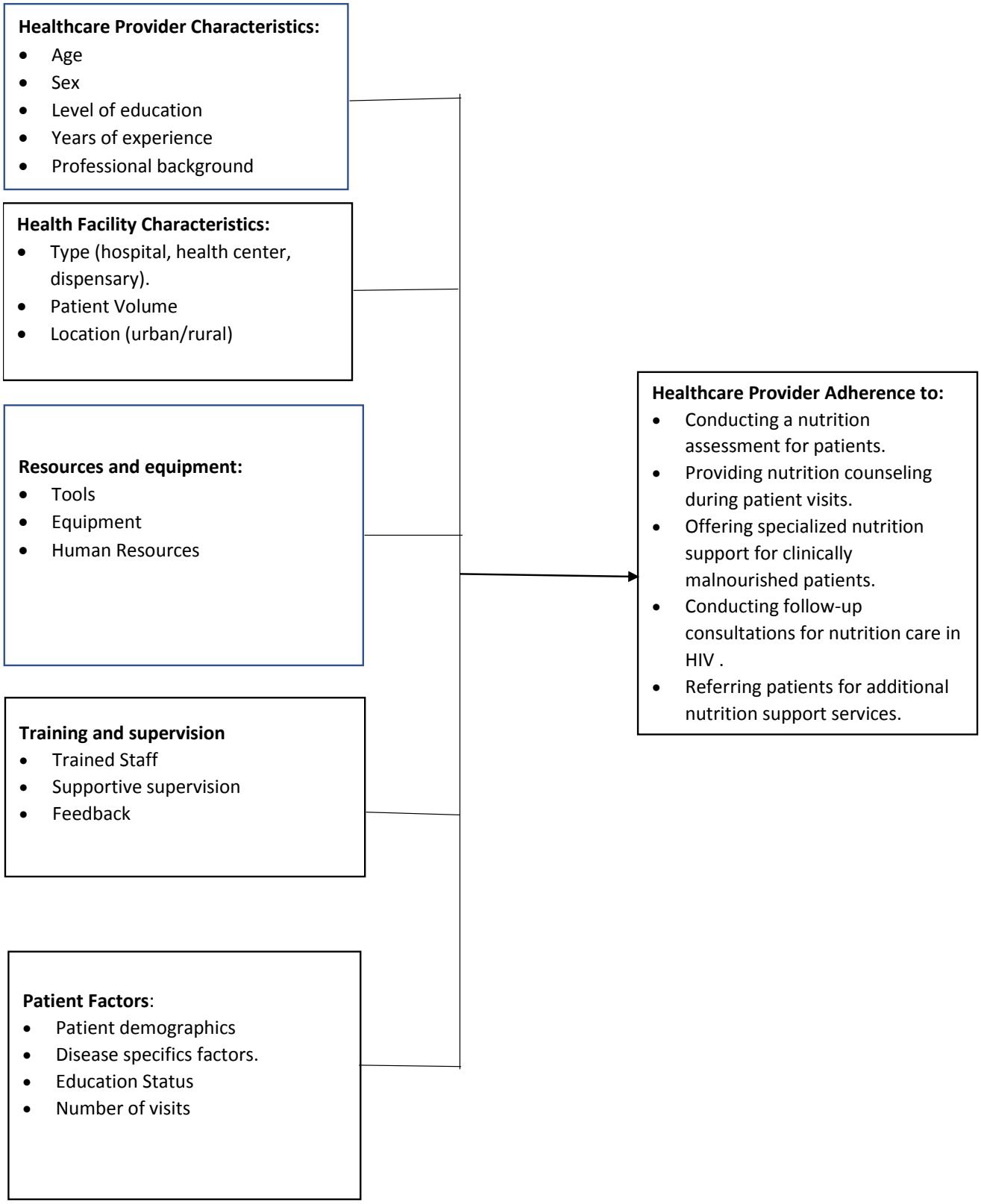
Evidence recommends integration of nutrition care and support with ART services to people living with HIV(30). Guidelines and recommendations based on evidence are available, however, treatment facilities have not fully integrated nutrition care and support(31). These services should include nutrition assessment, nutrition education and counselling, therapeutic and supplementary feeding, referral to follow up care and other needed services(14). However, evidence on the level of adherence to such guidelines is not available for Tanzania.

Furthermore, the factors affecting the adherence of these nutritional guidelines are not known in this context. Lack of such evidence continues to affect quality of care, services, and treatment outcomes for PLHIV even when on effective ART and other interventions, and therefore slowing down the pace towards attaining fast track targets. Therefore, this study aimed to assess the adherence to the National Guideline of Nutrition care and support of people with HIV in CTC clinics.

1.3 Conceptual Framework.

The RE-AIM framework provides a comprehensive approach to assess the public health impact of health intervention (32). It's key dimension of Reach and Effectiveness (Individual levels), Adoption and implementation (staff,system or policy level), and Maintenance (both individual and staff/system or policy) (33). In this study, which aimed to evaluate adherence to nutritional guidelines within CTCs, the RE-AIM model was particulary well suited for assessing both the effectiveness of the guideline adherence and the contextual factors impacting their implementation. This comprehensive, multi dimensional framework facilitated nuanced understanding of the intervention's outcomes, while also identifying the challenges that could hinder its sustainability.

The research question regarding adherence to the nutritional guidelines was aligned with the Implementation domain, which facilitated an in-depth investigation into how the guidelines were excuted across various healthcare settings. Similarly, the assessment of the determinants of adherence was linked to the Effectiveness and Adoption domains , which provided insights into the factors influencing the successful uptake of the guidelines. The study of facilitators and barriers was connected to both the implementation and Maintenance dimensions, ensuring that both current practices and long-term sustainability of the intervention were assessed. (32)


Healthcare Provider Characteristics:
Age
Sex
Level of education
Years of experience
Professional background
Health Facility Characteristics:
Type (hospital, health center, dispensary).
Patient Volume
Location (urban/rural)
Resources and equipment:
Tools
Equipment
Human Resources
Training and supervision
Trained Staff
Supportive supervision
Feedback
Patient Factors:
Patient demographics
Disease specifics factors.
Education Status
Number of visits
Healthcare Provider Adherence to:
Conducting a nutrition assessment for patients.
Providing nutrition counseling during patient visits.
Offering specialized nutrition support for clinically malnourished patients.
Conducting follow-up consultations for nutrition care in HIV .
Referring patients for additional nutrition support services.

1.4 Rationale.

The findings from this study address the critical gap in understanding the adherence to national nutritional care guidelines for PLHIV in Care and Treatment Centers (CTC) clinics. By revealing significant gaps in practice, such as the lack of provision of micronutrient supplements and inconsistent clinical nutritional assessments, the study highlights areas needing urgent improvement to ensure comprehensive nutritional care. This research provides a baseline for future studies and establishes an evidence-based framework for comparison, contributing to the broader field of HIV care and nutrition. In Tanzania, the inconsistent implementation of nutritional guidelines has hindered the overall well-being of PLHIV, underscoring the necessity for effective interventions. The collaboration between healthcare providers and policymakers is essential to promote adherence to these guidelines, highlighting the need for rigorous evaluation to enhance implementation. This study is vital for bridging the knowledge gap, ensuring that PLHIV receive the necessary nutritional support for their overall well-being and better health management. By addressing these issues, this research aligns with Sustainable Development Goal 3, which seeks to ensure healthy lives and promote well-being for all

1.5 Research questions.

What is the adherence to the National Guidelines for Nutrition Care and Support of People with HIV for people living with HIV attending care and treatment clinics (CTCs), and factors associated with adherence to these guidelines in Dar es Salaam, Tanzania?

1.5.1 Specific research questions.

1. What is the level of adherence to nutritional guidelines for people living with HIV in care and treatment clinics in Dar es salaam, Tanzania?
2. What are the determinants of adherence to nutritional guidelines for people living with HIV in care and treatment clinics in Dar es salaam, Tanzania?
3. What are the facilitators in adhering to the nutritional guidelines for people living with HIV in care and treatment clinics in Dar es salaam, Tanzania?

4. What are the barriers in adhering to the nutritional guidelines for people living with HIV in care and treatment clinics in Dar es salaam, Tanzania?

1.6 Objective.

1.6.1 General Objective:

To evaluate adherence to the National Guidelines for Nutrition Care and Support of People living with HIV attending in CTC clinics in Dar es Salaam and identifying factors influencing it.

1.6.2 Specific Objective

1. To determine the level of adherence to the National Guidelines for nutrition care and support of people living with HIV in care and treatment centers in Dar es salaam, Tanzania
2. To assess determinants of adherence to the National Guidelines for Nutritional care and support among patients and healthcare providers in CTC clinics in Dar es salaam, Tanzania.
3. To explore the facilitators in adhering to the National guideline for Nutritional care and support of people living with HIV in CTC clinics in Dar es salaam, Tanzania.
4. To explore the barriers in adhering to the National guideline for Nutritional care and support of people living with HIV in CTC clinics in Dar es salaam, Tanzania.

2.0 LITERATURE REVIEW

2.1 Overview:

HIV remains a presenting global public health challenge. Since the beginning of the epidemic, an estimated 85.6 million people have been infected with HIV virus and about 40.4 million people have died of HIV(10). As of the end of 2022, globally, 39.0 million people were living with HIV. Globally, a projected 0.7% of adults in the ages of 15 and 49 are HIV positive (10). There are still significant differences in the epidemic's burden between nations and areas. World Health Organization With approximately one in every 25 adults (3.2%) living with HIV and making up more than two-thirds of all HIV-positive individuals globally, the African Region continues to be the most severely afflicted (10).

Malnutrition encompasses all kinds of undernutrition, such as stunting, wasting, and underweight, as well as excess weight, obesity, and the ensuing non-communicable diseases linked to diet (34). Globally, 1.9 billion adults are overweight in which 600 million were obese, 264 million are women of reproductive age affected by Iron deficiency anemia, and 462 million adults are underweight and these occurs mostly in Asia and Sub Saharan Africa (35). This global burden of malnutrition has severe and long-lasting effects on people and their families, as well as on communities and entire nations in terms of development, economics, social issues, and health (34). Approximately one in three people worldwide suffer from malnutrition today, including wasting, stunting, vitamin and mineral deficiencies, overweight or obesity, and diet-related conditions (34)

2.2 Nutritional Needs and Challenges for People Living with HIV.

People living with HIV have increased energy requirements. The increase in energy requirements is likely to be 10% to maintain body weight and physical activity in asymptomatic HIV infected adults, and growth in asymptomatic children (36). In order to maintain adult body weight, energy needs rise by 20% to 30% during HIV symptoms and then during AIDS (37). HIV infection is associated with metabolic changes, these changes include

immune dysfunction and increased inflammatory response leading to increased thrombosis (38).

Change in the metabolism of cholesterol and lipid levels, which are also in charge of metabolic and cardiovascular risk in the general public (39). The virus's selective targeting of the immune system and the ensuing progressive immune system degeneration render the person more vulnerable to a variety of opportunistic infections and some types of cancer (40). Elevated CVD risk in comparison to the overall population. HIV infection itself, dyslipidemia, altered glucose metabolism, and elevated inflammatory cytokines all contribute to early CVD in HIV-positive individuals (41).

People with HIV sometime face issues that can affect their nutrition. These include alterations in the body's metabolism, stomach-unsettling medications, opportunistic infections that might impair eating and swallowing, and foods that may interfere with HIV treatment. Nausea, vomiting, diarrhea, cramping in the abdomen, anemia, malabsorption, appetite loss, and changes in the flavor of familiar foods are among the adverse effects of ARVs that are frequently linked to the gastrointestinal tract problems that PLHIV face. The acceptance of the illness and one's current state of health, dietary pattern modifications, firsthand experience with food insecurity, understanding nutrition, and support are the important elements (42).

2.3 Role of Nutritional care in HIV management.

Nutritional care is a crucial component in the management of HIV. It works in collaboration with Antiretroviral therapy (ART) to enhance health outcomes and ART adherence (43). Antiretroviral therapy (ART) works by stopping HIV from reproducing, which can reduce levels of HIV and keep the immune system healthy (44). While ART can’t cure HIV, it can reduce the levels of HIV in the body, allowing the body to produce more CD4 cells, which are an important part of the immune system (45). This keeps the immune system healthy and makes the patient less likely to get serious infections.

Nutrition care plays a critical role in this process. The degree to which antiretroviral therapy (ART) is effective in delaying the course of HIV/AIDS and enhancing the quality of life for

individuals living with the disease depends critically on managing the interactions between ART and food and nutrition (46,47). Good nutrition also helps people with HIV maintain a healthy weight and absorb HIV medications (48). Sufficient calories from macronutrients (proteins, carbs, and fats) and micronutrients (vitamins and minerals) constitute adequate nutrition, which helps patients stay nourished, boosts their resistance to infection, slows the spread of HIV, and enhances their quality of life (46). Furthermore, interventions that include nutritional education, food aid, supplementation of macro- and micronutrients, exercise, and livelihood interventions have been assessed on nutritional outcomes, quality of life, and mortality in HIV patients (46). These interventions have shown promising outcomes, including improving patient nutrition status as well as increased patient adherence and retention in healthcare settings.

2.4 Adherence of Nutritional Guidelines for HIV Care and Support.

The purpose of nutrition assessment, counseling, and support (NACS) interventions is to assess the nutritional status of individuals who are malnourished. In clinical care settings with limited resources, NACS encompasses a broad range of treatments aimed at preventing and treating malnutrition in adults and adolescents living with HIV (37). Healthcare providers in most Sub-Saharan African nations frequently lack fundamental communication skills, which leads to ineffective nutrition counseling and numerous missed opportunities to give nutrition services during routine prenatal, postnatal, and child care consultations (49). Nutrition counseling should to be the primary form of nutrition intervention in HIV management since it is an affordable intervention, particularly in developing nations with little resources and high rates of nutritional inadequacies (50). According to the data currently available, nutrition education is crucial in all contexts and should be combined with food assistance programs and, in cases where resources are scarce, the supplementation of macro- and micronutrients (51).

To fully understand the pattern of nutritional adherence among PLHIV across time, a longitudinal analysis was conducted. The study showed variations in adherence levels, highlighting the unpredictable nutrition management (52). Additionally, a study done in Nepal showed that there were different levels of adherence, and that economic status and availability

to nutritional education were important determinants of compliance. The study emphasized the importance of individual approach for improving adherence to guidelines (53) As previously mentioned, none of the research that we studied assessed a thorough NACS program. The longer-term effectiveness of nutrition assessment, counseling, and other types of support, including economic strengthening, livelihood, and food security support linked to adherence to clinical care and treatment, remains an important research gap, especially in light of the expansion of ART eligibility criteria and the anticipated decline in the proportions of adult PLHIV who will present with clinical wasting (37).

2.5 Determinants of adherence to nutritional guidelines for PLHIV.

The role of healthcare professionals trained in nutritional counseling tailored for HIV care is critical for enhancing the level of adherence. In East Africa, training programs in Kenya exemplify this, showing a direct link between healthcare workers' expertise in HIV nutrition and improved patient adherence (43). These programs equip healthcare providers with the necessary skills and knowledge to offer effective nutritional advice, directly influencing patients' dietary practices (54). In Uganda, clinics that have successfully integrated nutritional care within HIV treatment services report notably higher adherence rates. This integration means that patients receive a holistic approach to their health in a single visit, encompassing both their ART and nutritional needs. Such a model simplifies the care process for patients and enhances the effectiveness of the treatment plan (55). Rwanda experience with tailored education programs highlights the critical importance of patient awareness in adherence to nutritional guidelines. These programs, designed to meet the specific needs of HIV patients have significantly improved understanding and compliance with nutritional advice, demonstrating the value of patient-centered educational approaches (56).

Community-based initiatives in Tanzania, focusing on peer education and support, have proven effective in enhancing adherence to Nutritional guidelines. These programs leverage the power of community support to reduce stigma and provide practical, peer led advice, creating an environment where patients feel supported and informed (57). Mobile health technologies, including SMS reminders and applications, have shown promise in East Africa for improving

adherence. These technologies offer convenient and efficient means of delivering timely nutritional information and reminders to patients, helping to keep their nutritional management on track (58–61). Family members and caregivers play a vital role in the nutritional management of HIV patients in East African communities. Their involvement can significantly enhance adherence, as they often assist with dietary planning and ensure that patients follow through with nutritional recommendations (62)

Limited resources, including insufficient supply of nutritional supplements and lack of access to diverse and nutritious foods, are major barriers. A study in Ethiopia highlighted how economic constraints led to poor adherence to nutritional guidelines among HIV patients (63). The absence of adequate training for healthcare providers in nutritional counseling is a significant barrier. This gap was noted in a survey in Kenya, where healthcare workers expressed the need for more training in nutrition in nutrition specially tailored to HIV care(64). Difficulties in the practical implementation of guidelines, such as distribution of supplements or scheduling regular nutritional assessments, can hinder adherence. A report from Uganda mentioned logistical issues as a key challenge in providing consistent nutritional support to HIV patients (65).

Socioeconomic status and cultural dietary practices play a crucial role in adherence. In Tanzania, cultural beliefs around certain foods, food insecurity and financial limitations are common barriers. Similarly, a study in Malawi indicated that cultural misconceptions about diet and HIV can adversely affect adherence to nutritional guidelines (28,66,67). Stigma remains as another significant barrier to adherence. Fear of being identified as HIV- positive can discourage patients from seeking nutritional counselling or participating in HIV related nutritional programs. This issue has been observed across several Sub-Saharan countries including Tanzania (68,69).

2.6 Facilitators for adhering to Nutritional guideline.

Identifying facilitators is imperative for promoting positive practices. Investigated successful strategies such as regular training programs, supportive leadership promoting a culture of adherence, and the integration of nutritional care into broader healthcare services. These

facilitators were found to enhance guideline adherence among healthcare providers (70,71). Effective adherence to guidelines requires active patient participation. Explored community involvement, peer support networks, and patient education initiatives as essential facilitators. The significance of a patient-centric approach in developing interventions to improve PLHIV in CTCs' adherence to dietary guidelines is highlighted by these findings (73). To improve the health and nutrition status of people living with HIV, the expertise of a registered dietitian/nutritionist as part of the health care team should be considered (74).

2.7 Barriers for adhering to Nutritional guideline.

Effective use of guidelines may be hampered by barriers. identified several challenges, such as inconsistent policy implementation amongst CTCs, staff turnover, and a lack of funding for nutritional assistance. In order to provide a robust framework for following dietary recommendations, these issues must be addressed (70,72). Barriers such as that lack of adequate resources is a key hindrance when it comes to HCPs carrying out their works. It can thus be concluded that lack of adequate resources at health care facilities to support nutritional management of PLHIV is a key challenge. This calls for adequate resource allocation to ensure improved health outcomes for PLHIV (75). In addition, the lack of supplies and inadequate infrastructure in Lesotho's healthcare facilities have made it extremely difficult for HCPs to perform their tasks effectively. The study also highlighted the significant time constraints and high workload that greatly stress HCPs, especially those who work with PLHIV (76). In a qualitative study, health care professionals (HCPs) in Mozambique highlighted high patient loads, time restrictions, and frequent staff turnover as obstacles to a positive work environment that are related to scarce resources (77).

3.0 METHODOLOGY.

3.1 Study design

This is a process evaluation which adopted an explanatory sequential mixed method design (78). It involved a two-phase data collection. The first phase was analytical cross-sectional study design where quantitative data was collected targeting patients in order to provide their perspective on the level of adherence based on the observation of the researcher through an observation checklist and patient feedbacks from the exit interview. On the determinants of adherence to the National Guidelines for nutrition care and support among healthcare worker and patients in CTCs in Dar es salaam, quantitative data was collected targeting both patients and health facility in charge. The results were used to build on the second phase of qualitative methodology which was targeting healthcare providers, to investigate their experiences of providing care to PLHIV, addressing the third objective in understanding the challenges and opportunities in integrating nutritional care into HIV Care and treatment. This mixed-method approach effectively combined quantitative data on adherence level with qualitative insights into provider experiences, enhancing the robustness of the findings.

3.2 Study area

The study was conducted HIV Care and Treatment Centers (CTCs) of Dar es salaam, Tanzania. The study area was selected due to its high prevalence of approximately 4.7%(22) and as a major economic hub with established infrastructure, including numerous HIV CTCs making it an optimal location for this study. The study included a stratified sample across five districts of Dar es salaam, Kinondoni, Temeke, Ilala, Ubungo, and Kigamboni with a specific focus on including Regional Referral Hospitals (RRHs) due to their provision of specialized nutritionists who are integral to the implementation of the National Guidelines for Nutrition care and support.

These health facilities included Mwananyamala RRH, Magomeni health center, Mwenge dispensary, Kunduchi dispensary, Tegeta dispensary, Temeke RRH, Yombo Vituka health center, Tambukareli dispensary, Mbagala majimatitu dispensary, Toangoma dispensary,

Mbagala Kizuiani, Amana RRH, Mnazi Moja health center, Gerezani dispensary, Segerea dispensary, Majohe dispensary, Sinza hospital, Kimara Health center, Makuburi dispensary, Tip top dispensary, Goba dispensary, Mabibo dispensary, Vijibweni Hospital, Kigamboni health center, Kibada dispensary, Mji mwema dispensary and Gezaulole dispensary. These CTCs were selected to capture both high-volume urban facilities and suburban/periurban sites, ensuring representation of diverse healthcare settings. Urban CTCs reflect high patient loads, while suburban/periurban facilities provide insight into care in more rural-like environments, this approach allows a balanced understanding of adherence to the national nutrition guidelines across various healthcare settings.

This approach provides a balanced understanding of adherence to national nutrition guidelines across diverse healthcare settings. In high-volume urban CTCs, the guidelines ensure nutrition care remains a priority despite heavy patient loads, while in suburban/periurban centers, they promote standardized, equitable care despite resource limitations. The inclusion of Regional Referral Hospitals with specialized nutritionists underscores the critical role these guidelines play in improving patient outcomes and aligning with national health strategies

Study population.

The study population consisted of people living with HIV (PLHIV) attending CTC clinics, where observation and exit interview feedback on the health care provider’s adherence level was evaluated to determine the extent to which healthcare providers were adhering to the guidelines. The feedback from PLHIV provided a unique perspective on the healthcare provider's adherence to guidelines. The health facility in charge and health care providers were also included in the study as study population group, this group includes Doctors, Nurses, and Nutritionists, who work in CTC clinics. They are responsible for delivering care and support services to people living with HIV. A structured questionnaire response was obtained from the health facility in charge and was used to assess the determinants of adherence to the guidelines. Furthermore, to gain a more comprehensive understanding on the facilitators and barriers to adhering to the guideline healthcare providers were interviewed.

Eligibility Criteria.

Inclusion criteria for quantitative phase were all PLHIV who attended CTC clinics and consented to be able to participate fully on the study and health facility in charge; For qualitative phase healthcare providers were incluthrded if they are employed at one of the selected CTC clinics within the five districts of Dar es salaam, have been working in the CTC clinic for at least one year, ensuring they have sufficient experience with the guideline and it was also recommended by TFNC evaluation questionnaire and are directly involved in patient care and they were willing to participate in in-depth interviews. Exclusion criteria for quantitative phase was clients with acute medical distress at the time of data collection.

3.3 Sample size.

The sample size was be calculated using Kish and Leslie formula, (1965) for cross-sectional studies. Proportion (p) of PLHIV is assumed as 50% since the proportion for level of adherence is unknown.

The calculating the sample size will be deducted from Kish &Leslie (1965);

$N=Z^2p\ (1-p)/E^2$.

Where by:

N= sample size.

Z= Standard normal deviation at 95% confidence interval to 1.96.

P= 50%

E^2= Margin error, assumed to be 5%.

Therefore,

N= (3.8416x50x (100-50))/25

N= 9604/25

N= 384.

Assuming the non- response rate = 20%, the minimum sample size N is 480 respondents.

3.4 Sampling Approach

Phase 1: Quantitative sampling

Selection of the health Facilities.

Multi stage sampling was used to get the representative of sample cluster which is 25 public health facilities with CTC clinics for inclusion into this study (79). The facilities constituted of 1 district hospital, 1 health facility and 3 dispensaries (Urban, Sub urban and Peri-urban) (80) from each district. After the selection of five districts in Dar es salaam region, the researcher selected health facilities from each level within each district. In this stage the researcher obtained the sample of each type of facility in each district a simple random sampling (79) was done. Lottery method was used in obtaining a sample of one health center and three dispensaries in every district to make it total of 25 Health facilities this was done by writing in the slip of paper the names of all public health centers in those districts, then the papers were kept into a small box mixed thoroughly then papers were drawn providing the sample of the health facilities. For the dispensaries the researcher wrote the names of the dispensaries for Urban, Sub Urban and Peri urban and put them in their respective boxes, then mixed thoroughly and a sample was drawn. For the public hospital's researcher included all the district public hospitals in each district since in every district there is one public hospital.

3.5 Selection of Participants.

To minimize the potential masking effects of large facilities and ensure equitable representation across all health facilities, an equal number of participants were selected from each CTC clinic within the sampled public health facilities in Dar es Salaam. Specifically, each of the 25 facilities contributed an equal share to the total sample size of 480 participants, resulting in 19 participants per facility. In order to reflect the diverse conditions and challenges across different healthcare settings, participants who were available and consented to participate were included from these CTC clinics.

Health facility in charge(s) were selected from the 25 selected facilities and the selection of healthcare providers which included doctors, nurses and nutritionists were included within the

CTC clinics in the sampled 25 public health facilities. This was for the purpose of obtaining information on objective two, three and four.

A stratified sampling method was employed to ensure representation across all five districts and the different types of health facilities within Dar es salaam. Each stratum was based on the type of health facility (hospital or health center or dispensary) and district location.

Phase 2: Qualitative sampling.

A purposive sampling was used to recruit healthcare providers who had experience with the guideline's implementation. In-depth interviews were conducted with healthcare providers to gather insights, and data saturation was reached after interviewing thirteen participants, indicating that no new information emerged. The facilities were selected based on the adherence scores of their participants, specifically targeting those with poor adherence scores and those with very good adherence scores. This selection criterion ensured a comprehensive understanding of the factors influencing both ends of the adherence spectrum.

3.6 Variables and measurements.

3.6.1 Dependent Variable

The level of adherence is the dependent variable. The measurement of the level of adherence to the nutritional guideline was adapted from the National Nutritional guideline recommendation which is Minimum Nutrition Package. According to the guideline recommendation, every patient needs to receive this package on every clinic visit. It provides food and nutrition interventions as part of a clinical package of HIV care and treatment and has strong links to community-based services. This package contains four sections; Nutrition Assessment, Nutrition Education and Counselling, Therapeutic/supplementary feeding support and Referral/follow up services (14)

Nutrition Assessment contains Clinical assessment such as medical history, assessing for signs of nutrient deficiencies tongue pallor, goiter and corneal ulcers; Anthropometric assessment such as height, weight and body mass index; Biochemical assessment such as serum albumin, cholesterol, triglycerides, folic acids; Dietary assessment such as food eaten, appetite, food habits and behaviors. Nutrition Education and Counselling contains nutrition advise from the healthcare

provider on areas such as side effects of medications, dietary management, food and water safety and hygiene and counselling about nutrition and HIV. Therapeutic and supplementary feeding support contains specialized food products and micronutrient supplements (Folic acid, Vitamin A, Vitamin D). Lastly Referral to follow up and other health needed services such as scheduled return date to clinic and follow up(14).

These sections summed up to nine recommendations which had a binary response of Yes or No which indicated 1 or 0 respectively. This brough a maximum score of 9; where any participants that scored >= 6 was categorized as adherent to receive care as per the guidelines and any participants that scored < 5 was considered as non-adherent to receive care as per the guidelines, this was adapted from an Index Measuring Adherence to Complementary Feeding Guidelines (81,82).

3.6.2 Independent Variable.

The determinants of adherence to the nutrition guideline were the independent variables that involved the healthcare provider characteristics, health facility characteristics, resources and tools, training and supervision factors and patient characteristics. These determinants were evaluated using standard tools adopted from the Tanzania Demographic Health Survey (TDHS)(83), Tanzania Food and Nutrition Center (TFNC)(14), and Evaluation of facility level on NACS guide tool(84).

Healthcare Provider Characteristics, these were independent variables that affect the adherence of the nutritional guideline, these characteristics include the demographic and socio characteristics and professional background. The socio-demographic characteristics such as Age, gender, marital status, education levels were measured and categorized using the Demographic Health Survey(83). The age of the healthcare provider in years, gender of the healthcare provider categorized as (Male, Female), marital status of the healthcare provider categorized as (never married, married, living together, divorced/separated, widow) (83). Professional background of the healthcare provider was categorized as (Doctor, nurse, nutritionist, technician) and years of experience of the healthcare provider were adopted from the TFNC guideline questionnaire (14). These data were collected by the researcher through an interview using a structured questionnaire that has was adopted from the TDHS and TFNC.

Health Facility Characteristics, were the independent variable that influenced the adherence of the nutritional guideline, the characteristics included type of the health facility, patient volume and the location of the health facility. These characteristics were categorized and measured according the TFNC guideline tool. The type of health facility was categorized as (Dispensary, health center and hospital), patient volume, the location of the health facility was categorized as (Urban, Sub-urban). The researcher collected these data through interviewing health facility in charge using a structured questionnaire that has been adopted from TFNC(14).

Resources and equipment's, independently affected the adherence to the nutritional guideline, the availability of resources such as staffs and equipment directly influence how PLHIV received appropriate nutritional management at the clinics. According to USAID and FANTA rapid evaluation of facility NACS tool guide; The human resource has been elaborated in terms of the number of the provider that are assigned to the CTC unit, the type of cadre that usually provide the nutrition status at the facility level and the number of providers that have been trained in the past 3 years to provide nutrition services. Equipment and tools were important for assessment of the nutrition status, for healthcare provider to adhere to the guideline the tools and equipment's are required to be available. Availability of weighing scale, stadiometer, MUAC tape and the number of each that are working was essential in providing nutrition services. These parameters were measured as available or not available and were denoted as Yes and No (84), where the researcher collected this data through interviewing the health facility in charge using a structured questionnaire.

Training and supervision influenced independently how healthcare provider adhered to the nutritional guideline. According to the USAID and FANTA evaluation of the NACS tool guide, the availability of healthcare providers trained in the provision of nutrition services at the facility, the availability and frequency of supportive supervision on nutrition services at the facility, and the provision of feedback status on nutrition services following supervision were important parameters assessed for the comprehensive provision of nutrition services by healthcare providers. These parameters were categorized as Yes and No (84). The researcher collected these data through interviewing the health facility in charge using a structured questionnaire.

Patient characteristics independently affected adherence to the nutritional guidelines. Patient demographic characteristics such as age, sex, education level, marital status, and occupation status had an impact on how patients were more attentive in following the management of their condition. These demographic characteristics were measured and categorized according to the Tanzania Demographic Survey(83). Age of the patient in years, the sex of the patient (categorized as male, female), marital status of the patient, status and the level of education of the patient, the residence of the patient, the occupation status of the patient. The disease specific factor such as other medical condition, the number of visit patient attended the clinic, the recent CD4 count(22), were evaluated to explore how patient characteristics might influenced adherence to nutritional guidelines. The researcher collected these data through an interview with the patient using a structured questionnaire that has adopted the questionnaire from Tanzania Demographic Health Survey (TDHS) and Tanzania HIV Impact Survey (THIS) (22,83).

3.7 Data collection

The data collection had two phases quantitative stratified sampling in the first phase and with purposeful sampling in the second phase. The study had three research assistants, consisting of two medical doctors and one clinical officer, were introduced to the study during an orientation session that outlines the research objectives and ethical standards. They underwent a three-day training program focused on interview techniques, questionnaire content, data collection ethics, and the review of the nutritional guideline for PLHIV. In their role, the Ras conducted observations using checklist while patients were in the doctor's room and facilitated exit interviews afterward, each quantitative interview lasted an average of 35 minutes.

Phase 1: Quantitative Data Collection.

During the visit to CTC clinics, the research assistant was introduced to the in charge of CTC clinics and all staffs at the clinic and the researcher explained the goal and purpose of the study. Data was collected through an observation using an observation checklist (84), when the patient is getting services and an exit interview followed when clients was done receiving services from the healthcare provider through a structured questionnaire this was done to answer objective one of determining the level of adherence; the second objective was to assess

the determinants of adherence to the guideline using a structured questionnaire interviewing the health facility in charge.

The data collected was cleaned by correcting typos, handling the missing values and inconsistencies in units; was then organized and coded according to variables and their corresponding data types; stored in a secured cloud storage since it contained sensitive health information.

Phase 2: Qualitative Data Collection.

In-depth interview was employed during collection of data, where the healthcare workers were recruited purposively from the adherence score rate of each CTC facility. The researcher, a Medical Doctor by profession reemphasized to the healthcare providers about their willingness to participate in the study. Data collection was done through exploring the facilitators and the barriers related to adherence to the guideline using a semi-structured questionnaire. Data process collection was conducted in Kiswahili, the language spoken fluently and some mixed with English. During the interview the researcher recorded the interview using a recording device (IC recorder) and took notes from the non- verbal explanation discussion also follow up question were asked to probe deeply in order to gain understanding the matter. Each interview was done in a private room inside the CTC facility to ensure privacy and quality for the recordings, with average duration of 25 minutes.

Quality of quantitative data tool.

Validity.

The study employed a tool that was adapted from the National Nutrition Guideline recommendations. In addition, the researcher crosschecked and compared the data of what the patient had said and the documentation. Furthermore, the research assistants were trained to know what is the study about and where to put focus on.

Reliability.

The Cronbach's Alpha was used to assess the internal consistency of the evaluation tool items. A set of 20 items were checked for internal consistency this includes the observational

checklist and a structured questionnaire the Cronbach's alpha was 0.71 entailing acceptable internal consistency

Quality of qualitative data.

Trustworthiness.

The four assessment criteria that comprised the concept of trustworthiness are credibility, dependability, confirmability, and transferability.(85). For the trustworthiness, the researcher will use conformability, credibility, transferability, and dependability.

Credibility.

The validity of a study's procedures and the accuracy of its data determine how reliable the study appears. In addition to having relevant prior knowledge on HIV and nutrition, which gives the researcher confidence during in-depth interviews, the researcher has designed an interview strategy to ensure uniform results across the data.

Transferability.

As employed in the context of qualitative research, "transferability" refers to the extent to which the findings of one study can be transferred to the findings of another study with a similar demographic or setting. This study offers the potential to provide detailed, comprehensive, and unambiguous descriptions of the research setting and the analytical process. This facilitates readers' assessment of the results' generalizability to alternative circumstances.

Dependability.

To maintain consistency during the processing of data and interpretation process, the researcher ensured dependability by conducting each interview using the same interview guide.

Conformability

Ensuring that the conclusions drawn from the data were supported by the evidence itself rather than by the inquirer's own assumptions or preconceptions, the data was assumed to genuinely reflect the given participant information, with any conclusions derived from the information rather than those the researcher made up. This approach ensured that the results presented were the viewpoints of the study participants instead of the researchers.

Pre-testing of the Tools.

Prior to the main data collection, a pilot study was conducted in Tip top dispensary and Toagoma dispensary. These facilities have been purposively chosen according to the type of facility and volume of patients. The purpose was to pre-test the tools and the interview guide for the relevance and clarity of the questions, and to identify any potential errors with the tools.

3.8 Data analysis

Phase 1: Quantitative data analysis.

For objective one; To determine the level of adherence to the national guidelines for Nutrition care and support. A descriptive analysis was done to provide the summary statistics on the mean and standard deviation for continuous variables and percentages for categorical variables.

For objective two; To identify the determinants of the level of adherence to national guideline for Nutrition care and support a descriptive analysis particularly on the frequencies and percentages, bivariate and multivariate analysis were done to identify significance of determinants while controlling for confounding variables.

Phase 2: Qualitative data analysis.

For objective three and four; The qualitative data was analyzed using content analysis, following a structured approach. First, the research question was clearly defined to guide the analysis. Next, data familiarization was conducted, where the audio files of the scripts were repeatedly listened to capture word to word transcription of the notes. This process ensured a comprehensive understanding of the content. Data was then be translated from Swahili to English, and the transcripts were read thoroughly to make sure no word was missed and to be familiarized with data. A coding scheme was developed by creating a codebook, identifying categories based on the interview questions, which lead to the generation of sub-categories for each category.

The sub-categories were then refined into more specific codes. The researcher uploaded the translated transcripts in the NVivo software, facilitating the organization and cross referencing all the 13 transcripts and allowing for the identification of categories. Each category was thoroughly analyzed to capture the context and narrative of the interviewees, with narrative statements identified and reported in the findings. The analysis included interpreting the meanings behind the identified codes, drawing connections between different categories, and highlighting significant insights related to the research question. The interpretation not only clarified the variation of the data but also contextualized the finding within existing literature. This structured process provided a robust framework for understanding the qualitative data, ensuring that the analysis was thorough and insightful.

3.9 Ethical consideration

Ethical clearance of conducting this study was obtained from Muhimbili University of Health and Allied Science (MUHAS) Research and Ethics Committee (Reference No. DA.282/298/01.C/2156). An introductory letter for data collectors was obtained from MUHAS IRB. Permission for conducting the study in the five district of Dar es salaam was obtained from District Aids Control Coordinator of each district, through District Medical Officer (DMO) of the respective district. At the CTC clinics, written informed consent was obtained from the client and healthcare providers who voluntarily accept to participate in the study.

We made sure that participants' right to privacy and anonymity was given first priority over all other factors, and strict confidentiality was upheld throughout the whole study. To avoid interference from the surrounding environment, interviews was held in a private room in order to achieve this purpose. To further restrict access to the information by unauthorized people, passwords were used to encrypt the safe storage of transcripts and recordings. This ensured that the information collected was only used for the study objectives.

4.0 FINDINGS.

4.1 Socio-Demographic Characteristics of Study Participants

A total of 485 participants were approached for the study, of which 7 (1.46%) refused to participate, resulting in 478 participants included in the analysis, with 351 (73.43%) being female. The mean age of the participants was 42 years (SD: 12.06). Most participants, 158 (33.1%), were aged 45-54 years. Additionally, 278 (58.16%) of the participants resided in urban areas, and 154 (32.22%) were married. A significant portion, 319 (66.74%), had a primary education, and over the past 12 months, 393 (82.22%) reported having an income source. (Table 1).

Table 1: Socio-Demographic Characteristics of Participants (n=478)

Variable	Category	Frequency	Percentage (%)
Gender	Female	351	73.43
	Male	127	26.57
Age	15-24 years	27	5.65
	25-34 years	87	18.20
	35-44 years	141	29.50
	45-54 years	158	33.05
	55-64 years	50	10.48
	65+ years	15	3.14
Residence	Suburban	200	41.84
	Urban	278	58.16
Marital Status	Widowed	61	12.76
	Married	154	32.22
	Living Together	55	11.51
	Divorced/Separated	105	21.97
	Never Married	103	21.55
Income Source	No	85	17.78
	Yes	393	82.22
Education Level	Higher Education	19	3.97
	Secondary Education	89	18.62
	Primary Education	319	66.74
	No Education	51	10.67

Level of Facility	Referral Hospital	58	12.13
	Hospital	40	8.37
	Health Center	124	25.94
	Dispensary	256	53.56
Profession (Cadre)	Medical Doctor	185	38.7
	Clinical Officer	196	41
	Nurse	97	20.29
Ever done CD4 test	No	35	7.43
	Yes	443	92.68

4.2 Characteristics of selected CTC clinics in Dar es Salaam

The study included 25 Care and Treatment Clinics (CTCs) in Dar es Salaam. Among these, dispensaries were 15(60%), with a mean volume of 2322 clients (SD: 2097.3). Additionally, 19(76%) of the clinics had at least minimum required number of staffs allocated. However, 16(64%) did not have staff who had received training. Furthermore, 15(60%) of the facilities did not receive any support supervision, and among those received supervision 15(60%) reported that did not receive feedback. The majority of the clinics, 24(96%) of the clinics had an assigned weighing scale, and 23(92%) had an assigned stadiometer. Moreover, 17(68%) did not have a MUAC tape (Table 2).

Table 2: Characteristics of Selected CTC Clinics in Dar es Salaam (n=25)

Variable	Category	Frequency	Percentage (%)
Type of Health Facility	Referral Hospital	3	12
	Hospital	2	8
	Health Center	5	20
	Dispensary	15	60
Number of Staff Allocated	Inadequate	6	24
	Adequate	19	76
With Trained Staff	No	16	64
	Yes	9	36
Received Support Supervision	No	15	60
	Yes	10	40
Received Feedback After Supervision	Don't Know	2	8
	No	15	60
	Yes	8	32
Weighing Scale Available	Yes, Assigned	24	96
	Yes, Shared with other clinics	1	4
	No	0	0
Stadiometer Available	No	1	4
	Yes, Assigned	23	92
	Yes, Shared with other clinics	1	4
MUAC Available	No	17	68
	Yes, Assigned	7	28
	Yes, Shared with other clinics	1	4

4.3 Adherence to the National Guidelines for nutrition care and support of people living with HIV in care and treatment centers clinics.

Out of the 478 participants, 93 (19.46%) PLHIV received treatment which has fully adhere to the national nutrition guidelines. While follow-up care and anthropometric assessments were universally implemented (100%), the provision of micronutrient supplements was significantly lacking, with only 1% of participants receiving them. Clinical nutritional assessments were conducted for 68% of participants, biochemical nutritional assessments for 37%, dietary assessments for 42%, side effects monitoring for 48%, hygiene assessments for 38%, and nutrition counseling for 51%. This indicates a strong adherence to follow-up care and anthropometric assessments but reveals significant gaps in other critical areas.

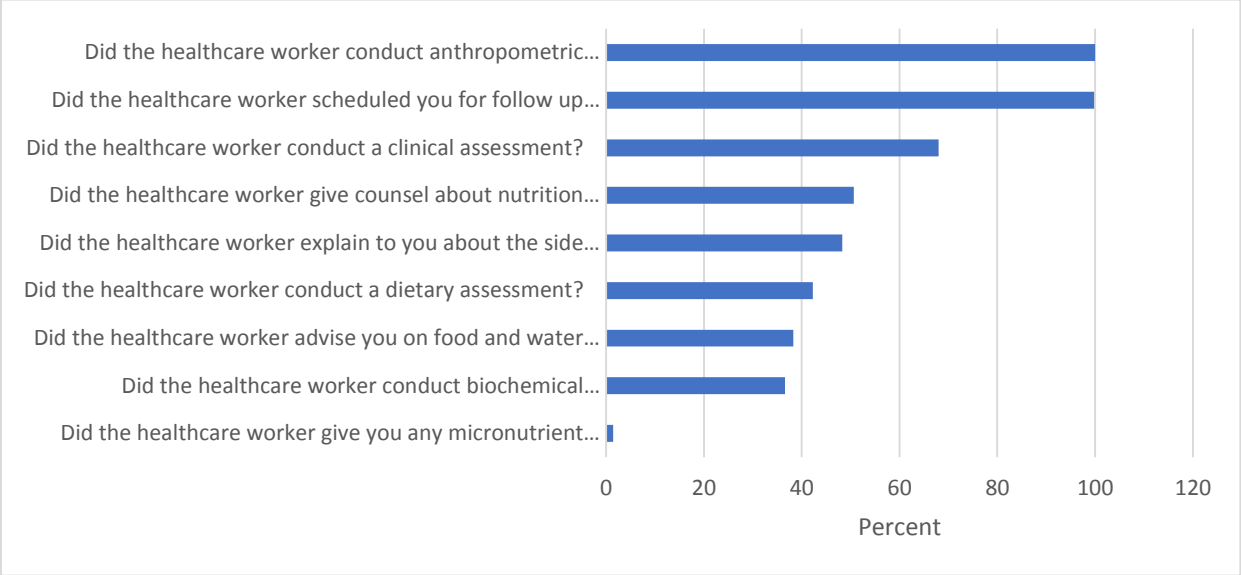


Figure 1: Adherence to Specific Aspects of Nutritional Care Guidelines

Adherence rates to guidelines varied across different types of healthcare facilities. Referral hospitals had the highest adherence rate at 40%, indicating a strong compliance with the guidelines. Hospitals and health centers both showed moderate adherence rates, each at 25%. Dispensaries had the lowest adherence rate at 10%, suggesting potential challenges in maintaining guideline compliance in these facilities.

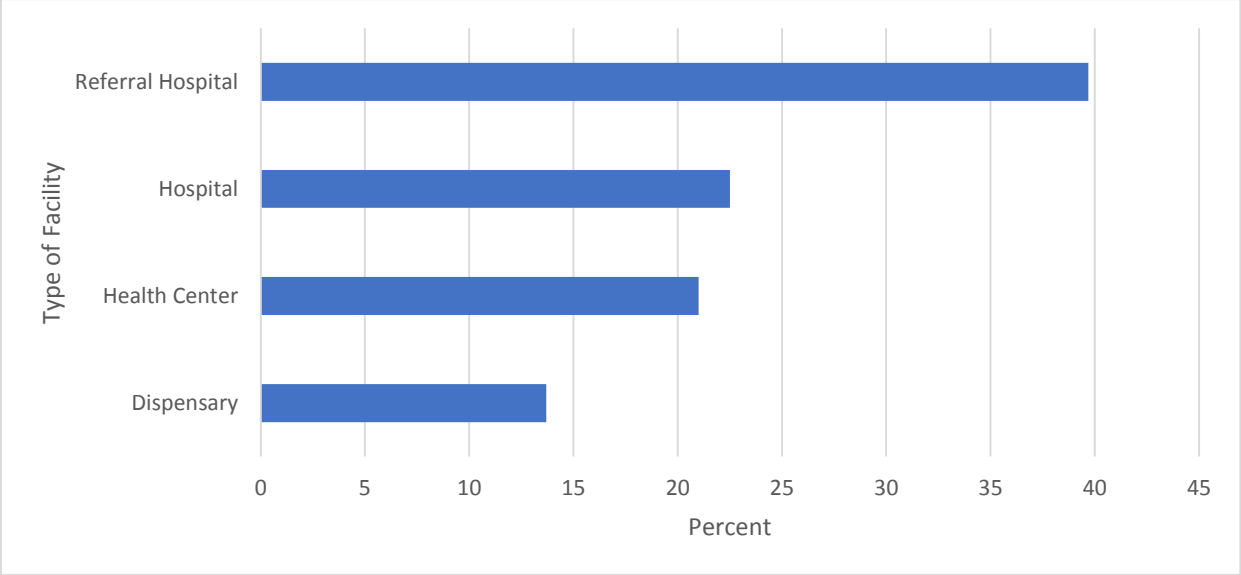


Figure 2: Adherence to the level of the facilities.

4.4 Determinants of adherence to the National Guidelines for Nutritional care and support among patients and healthcare providers in CTC clinics.

During the bivariate analysis, residence emerged as a significant determinant of adherence to the National Guidelines for Nutritional Care and Support. Higher adherence was observed in suburban areas 24%, (n=48) compared to urban areas 16.2%, (n=45) ($\chi 2 = 4.5309$, $p = 0.033$) (Table 3).

Table 3: Bivariate Analysis Characteristics of Adherence to the National Guidelines for Nutritional Care and Support (n=478)

Characteristics	Total	Adhered	Not Adhered	χ2 (df)	P value
Gender					
Female	351	69 (19.7%)	282 (80.3%)	0.0344 (1)	0.853
Male	127	24 (18.9%)	103 (81.1%)		
Age					
15-24 years	27	6 (22.2%)	21 (77.8%)	3.0258 (5)	0.696
25-34 years	87	16 (18.4%)	71 (81.6%)		
35-44 years	141	23 (16.3%)	23(83.7%)		
45-54 years	158	34(21.5%)	123 (78.5%)		
55-64 years	50	10 (20%)	40 (80%)		

65+ years	15	4 (26.7%)	11 (73.3%)		
Residence					
Suburban	200	48 (24%)	152 (76%)	4.5309 (1)	0.033
Urban	278	45 (16.2%)	233 (83.8%)		
Education Level					
No Education	51	9 (17.6%)	42 (82.4%)	3.9183 (3)	0.27
Primary	319	61 (19.1%)	258 (80.9%)		
Secondary	89	16 (18%)	73 (82%)		
Higher	19	7 (36.8%)	12 (63.2%)		
Marital Status					
Divorced/Separated	105	15 (14.3%)	90 (85.7%)	2.8200 (4)	0.588
Living Together	55	11 (20%)	44 (80%)		
Married	154	30 (19.5%)	124 (80.5%)		
Never Married	103	23 (22.3%)	80 (77.7%)		
Widowed	61	14 (23%)	47 (77%)		
Income Source					
No	85	20 (23.5%)	65 (76.5%)	1.0946 (1)	0.295
Yes	393	73 (18.6%)	320 (81.4%)		
Type of facility					
Dispensary	256	35(13.7%)	221(86.3%)	20.98(3)	0.000
Health Center	124	26(21%)	98(79%)		
Hospital	40	9(22.5%)	31(77.5%)		
Referral Hospital	58	23(39.7%)	35(60.3%)		
Provider Type					
Medical Doctor	178	54(30.3%)	124(69.7%)	25.67(2)	0.000
Clinical Officer	203	33(16.3%)	170(83.7%)		
Nurse	97	6(6.2%)	91(93.8%)		

During multivariate analysis, several factors were identified as influencing adherence to nutritional guidelines among participants. Clients with higher education were significantly more likely to receive care that adhered to the National Guidelines for Nutrition Care and Support, with a 5.08 times higher adherence rate compared to those with no education (AOR=5.08; 95% CI: 1.30-19.79; p=0.019). Additionally, clients attending referral hospitals had a notably higher likelihood of receiving care that adhered to the National Guidelines, with

an 8.23 times higher adherence rate compared to those attending dispensaries (AOR=8.23; 95% CI: 1.19-56.59; p=0.032).

Conversely, participants who were attended by nurses were less likely to receive care that adhered to the National Guideline for Nutrition Care and Support compared to those attended by doctors, with an AOR of 0.34 (95% CI: 0.70-4.42; p=0.038). Adequate staffing was associated with a lower likelihood of receiving care that adhered to the National Guideline for Nutrition Care and Support compared to having inadequate staffing, with an AOR of 0.31 (95% CI: 0.13-0.76; p=0.010). Urban residents were also less likely to receive care that adhered to the Nutrition guideline compared to those in sub-urban areas (AOR=0.47; 95% CI: 0.27-0.82; p=0.009).

Participants aged 65 and older were initially observed to be slightly more prone to adhere to the guidelines. However, after adjustment, the adherence rate decreased (AOR=0.74; 95% CI: 0.13-4.19; p=0.740), suggesting that other factors, such as widowed status, may influence adherence in this age group. (Table 4).

Table 4: Multivariate Logistic Regression Analysis of Factors Associated with Adherence.

Variable and Categories	Total (n)	COR (95% CI)	P-Value	AOR (95% CI)	P-Value
Age Category					
15-24	27	1		Ref	
25-34	87	0.78(0.27-2.26)	0.66	1.30(0.38-0.43)	0.671
35-44	141	0.68(0.24-1.87)	0.45	0.99(0.29-3.39)	0.992
45-54	158	0.95(0.35-2.56)	0.935	1.45(0.43-4.93)	0.545
55-64	50	0.87(0.27-2.74)	0.819	1.14 (0.29-4.53)	0.845
65+	15	1.2(0.29-5.48)	0.746	0.74(0.13-4.19)	0.740
Gender					
Female	351	1		Ref	
Male	127	0.95(0.56-1.59)	0.853	0.82(0.45-1.50)	0.539
Education Level					
No education	51	1		Ref	
Primary	319	1.10(0.51-2.3)	0.803	1.42(0.59-3.40)	0.423

Secondary	89	1.02(0.41-2.51)	0.961	1.40(0.50-3.89)	0.511
Higher	19	2.72(0.83-8.83)	0.096	5.08(1.30-19.79)	0.019
Marital Status					
Divorced	105	1		Ref	
Living together	55	1.5(0.63-3.53)	0.354	2.03(0.79-5.21)	0.141
Married	154	1.45(0.73-2.85)	0.280	1.91(0.90-4.04)	0.088
Never Married	103	1.725(0.84-3.53)	0.136	2.03(0.88-4.64)	0.093
Widowed	61	1.78(0.79-4.01)	0.160	1.74(0.70-4.32)	0.227
Residence area					
Sub-urban	200	1		Ref	
Urban	278	0.61(0.38-0.96)	0.034	0.47(0.27-0.82)	0.009
Source income					
No	85	1		Ref	
Yes	393	0.74(0.422-1.30)	0.297	0.84(0.42-1.67)	0.628
Type of Facility					
Dispensary	256	1		Ref	
Health Center	124	1.67(0.95-2.93)	0.071	0.88(043-1.79)	0.737
Hospital	40	1.83(0.80-4.17)	0.149	1.13 (0.37-3.42)	0.828
Referral Hospital	58	4.14(2.19-7.83)	0.000	8.23(1.19- 56.59)	0.032
Provider Type					
Clinical Officer	196	1		Ref	
Nurse	97	0.33(1.13-0.84)	0.020	0.34(0.70-4.42)	0.038
Doctor	185	2.24(1.37-3.66)	0.001	3.77(1.72-8.27)	0.001
Staff Level					
Inadequate	6	1		Ref	
Adequate	19	0.82(0.47-1.44)	0.500	0.31(0.13-0.76)	0.010
Trained Staff					
No	16	1		Ref	
Yes	9	2.30(1.33-3.96)	0.003	0.23(0.04-1.34)	0.103
Supervision Status					

No	15	1		Ref	
Yes	10	2.09(1.32-3.30)	0.002	0.69 (0.34-1.41)	0.319
Tool (MUAC)					
No	17	1			
Yes, assigned	7	2.59(1.61-4.18)	0.000	1.70(0.955-3.04)	0.071
Yes, shared	1	1.07(0.30-3.84)	0.908		

4.4 Facilitators and Barriers in adhering to the National guideline for Nutritional care and support of people living with HIV in CTC clinics.

4.4.1 Introduction.

This qualitative study aimed to identify the facilitators and barriers in adhering to nutritional guidelines within Care and Treatment Clinics (CTCs) in Dar es Salaam.

4.4.2 Socio-demographic characteristics of the participants.

Participants were selected from various healthcare facilities, including dispensaries, health centers, and hospitals. Their ages ranged from 24 to 51 years, with the majority being male. Specifically, seven out of thirteen participants were male, and six were female. The professional backgrounds of the participants included clinical officers, nurses, nutritionists, and medical doctors, with their experience in working at CTCs ranging from one to eighteen years. The diverse professional backgrounds and experiences of the participants provided rich data, ensuring a comprehensive understanding of the practices and barriers in CTCs.

Participant code	Name of the Facility	Type of Facility	Gender	Age (Yrs.)	Profession	Experience working at CTC (Yrs.)
1	Mji mwema	Dispensary	F	28	Clinical Officer	3
2	Yombo Vituka	Health Center	M	36	Clinical Officer	3
3	Goba	Dispensary	M	27	Nurse	1
4	Magomeni	Health Center	M	38	Clinical Officer	2
5	Temeke	Hospital	M	34	Nurse	4
6	Temeke	Hospital	F	26	Nutritionist	1
7	Mnazi mmoja	Health Center	M	35	Medical Doctor	1
8	Mnazi mmoja	Health Center	F	24	Nutritionist	1
9	Tegeta	Dispensary	F	51	Nurse	18
10	Makuburi	Dispensary	F	40	Nurse	10
11	Tambukareli	Dispensary	M	28	Clinical Officer	2
12	Amana	Hospital	M	38	Medical Doctor	3
13	Amana	Hospital	F	51	Nutritionist	16

4.4.3 Categories, Sub-Categories, and Codes.

The findings of this study are organized into two major categories: Facilitators and Barriers, which highlights the key factors influencing adherence to the National Guidelines for Nutrition Care and support for people living with HIV. Each Category is further divided into specific sub-categories, allowing for a detailed examination of the various influences on

adherence. Distinct codes associated with each sub-category represent specific insights derived from the qualitative data.

Table: 5 Categories, Sub-categories and Codes.

Categories	**Subcategories**	**Codes**
1. Facilitators to Adhering to Guidelines	Training and Competencies	Received training programs; Competencies; skills; knowledge; guidelines awareness.
	Organizational Support	Leadership support; interdepartmental coordination
	Patient Education	Regular educational sessions; Integrated health education programs.
2. Barriers to Adhering to Guidelines	Resource Limitations	Insufficient funding; Lack of nutritional supplements; patient economic status
	Staff turnover	High staff turnover; time constraints; workload; Inadequate training for new staff.
	Documentation Challenges	Poor documentation by healthcare providers; Lack of nutritional indicator.

Category 1: Facilitators to Adhering to Nutritional Guidelines.

Training and Competencies.

Healthcare providers understand the importance of adhering to national nutritional guidelines for PLHIV. Training programs provided by various organizations have been instrumental in enhancing their knowledge and skills.

> *"I have attended around ten to fifteen nutrition training sessions related to the national nutrition guidelines Training has significantly improved my skills, they have significantly improved my competency, especially those from MUHAS we understand many things now,...when training was provided, we received all the necessary information until it stopped".* (IDI participant 13)

Despite the benefits of these training sessions, the study revealed that training for healthcare providers on nutritional guidelines for PLHIV is inconsistent and often dependent on specific projects or external funding. This inconsistency has led to gaps in knowledge and practice among healthcare providers.

> *" Training sessions are not regular; they come with projects. When there's no project, there's practically no training, ……. the MUHAS training sessions were mostly research-based, helping us understand nutrition issues at the household level and income-generating activities for PLHIV. This helps them become self-reliant, improving their food security and nutrition at the household level. In health facilities, we provide assessment, counseling, and support. If there is nutritional support from projects like Global Fund or MDH, we categorize and support patients with severe needs with nutritional commodities "* (Healthcare Worker)

This highlights the reliance on external funding and projects to facilitate training, suggesting that without these projects, healthcare workers are left without the necessary updates and skill-building opportunities. The sporadic nature of training can negatively impact the quality of care provided to PLHIV, as healthcare workers may not be up-to-date with the latest nutritional guidelines and best practices. Additionally, the lack of continuous training leads to challenges

in implementing consistent nutritional care. Healthcare workers stressed that ongoing training would ensure they are well-equipped to address the evolving needs of PLHIV effectively. Regular training sessions would not only improve their knowledge but also boost their confidence in delivering comprehensive care, ultimately enhancing the overall health outcomes for PLHIV.

> *"Of course, as much as we're trying to update ourselves, being updated, uhm, but also orientations and training work much better, okay, because they increase your confidence in working knowledge and all that. Speaking of orientation and training that includes other staff—doctors, nurses, counselors—so even if there is only one nutritionist in the hospital, there are some other activities that can be done by nurses, counselors, and doctors to reduce the workload. And even for clients who might not see a nutritionist because their weight and nutritional status are fine, they can still receive counseling to stay updated so they don't fall behind or face any challenges."*(Healthcare worker).

Organizational Support and Guidelines.

Effective leadership has shown a crucial role in ensuring adherence to nutritional guidelines, particularly in the context of managing HIV, this extends beyond mere supervision it involves creating an environment where staff feel supported and motivated to uphold the standards set by nutritional and HIV care guidelines. A healthcare worker from a dispensary revealed the significant impact of leadership on guideline adherence.

> *"The specific ways our leaders use involve internal supervision, which is conducted to monitor the clients served throughout the week. This is because there is something called 'backup.' When this backup is sent, it goes primarily to the Medical Officer In charge, who reviews it since they are the leaders we have here. They look at the backup to identify gaps, whether in blood pressure, CD4 counts, or viral load. When they see these gaps, they tell us, Okay, here we haven't followed the guidelines properly, you need to do this and that, this helps us strengthen our HIV services."* (Healthcare worker)

This proactive approach by leadership ensures that staff are not only aware of the guidelines but are also supported and monitored in their implementation, fostering an environment of continuous improvement. Complementing this, a medical doctor from a health center highlighted the daily efforts by their leadership to promote adherence to the guideline.

> *"Our leaders remind us every day to follow the guidelines. They provide us with the guidelines, which we read regularly. We also have weekly meetings where they guide us on following the guidelines.....They help by providing tools designed to guide us, which they regularly monitor these tools to ensure we are following the guidelines. They check and review the tools, which helps remind us of anything we might have forgotten."* (Healthcare worker)

Interdepartmental coordination has highlighted a crucial standpoint for comprehensive care especially for nutritional support in PLHIV, effective collaboration between departments enhances care quality, ensuring patients receive timely, specialized interventions.

> *"When a patient comes in and we determine they need specialized nutritional support, we refer them to our nutrition specialists. This way, they get the focused care they need, which we might not be able to provide adequately within our general practice."* *(*Healthcare worker)

This practice ensures targeted nutritional interventions and a holistic approach to patient care. Coordination also integrates nutritional care with other treatments, creating cohesive plans that address all health aspects, especially in managing chronic conditions. This integration improves overall patient outcomes by leveraging the expertise of specialized staff to address complex health issues comprehensively.

Patient Education.

Regular educational sessions are cornerstone in improving patients' understanding of the importance of nutrition, particularly for those living with HIV. These education sessions provide continuous, structured opportunities for patients to learn about maintaining proper nutrition and its role in overall health management. Many clinics are conducting daily health

talks that covers a variety of health topics, including nutrition. These sessions are strategically scheduled to ensure maximum participation and engagement from patients. “

> *"We usually provide education every morning before starting services at 7:30 am. The education we provide covers many topics, including nutrition, because the medication they take requires food. Without sufficient education, people cannot understand this, so we emphasize the importance of food, the importance of leafy vegetables, lifestyle nutrition, and which foods are not good for health."* (Healthcare worker)

These sessions offer comprehensive information on balanced diets, food groups, and dietary recommendations specific to HIV management. The interactive format encourages patient engagement, ensuring practical and relevant advice. Consistent reinforcement of nutritional guidelines helps patients develop healthy dietary habits, crucial for managing HIV effectively.

Integrated health education programs play a vital role in ensuring that patients receive consistent and comprehensive messages about the importance of nutrition. These programs are embedded into routine care, which helps reinforce essential health information and promotes better health outcomes. This integration is exemplified by how patients receive education on managing hypertension and obesity alongside their HIV care. This holistic approach ensures that patients understand the interconnectedness of various health conditions and the role of nutrition in managing them effectively.

"However, our center is among the facilities piloting a One Stop Center for the management of non-communicable diseases for people living with HIV, starting with hypertension. We see a gap in education because people are becoming overweigh, because this is an issue, I think it’s very appropriate to consider starting to provide education on nutrition.” (Healthcare worker)

Category 3: Barriers to Adhering to Guidelines.

Resource Limitations.

Funding shortages were a common issue impacting the ability to provide comprehensive nutritional support. In an interview with the healthcare workers, one respondent highlighted the direct impact of these financial constraints:

> *"The main challenge is the lack of time to explain nutrition thoroughly to clients. With funding, we could arrange sessions on weekends to educate clients properly. Without funding, it's challenging to find enough time during weekdays."* (Healthcare worker)

This statement underscores the difficulties healthcare providers face in delivering thorough nutritional education due to limited funding. The lack of financial resources not only restricts the availability of educational materials and resources but also hinders the time healthcare workers could dedicate to patients. This limitation affects the overall quality of nutritional support, making it imperative to address funding challenges to enhance comprehensive care for patients.

The distribution of nutritional supplements is inconsistent, often reliant on fluctuating external funding. This leads to periods where essential supplements are unavailable, negatively impacting the health and nutrition of people living with HIV (PLHIV). Without a steady supply of these supplements, patients are left without critical nutritional support, which is essential for managing their health and improving treatment outcomes.

> *"Unfortunately, we're facing challenges. We lack therapeutic and supplemental foods, which hinders our progress. A client comes in with needs, really needs nutritional supplements. So, just talking to them and telling them to do one, two, three things set us back. It's frustrating; there's no perfect way to express this. For moderately malnourished patients, the guideline suggests seeing them every two weeks if possible, or at least monthly. However, without supplements, we can't retain them. After a month, they return, and we have to repeat the same instructions. This repetitive approach discourages return visits."* (Healthcare worker)

Inconsistent distribution means patients can go for months without the necessary nutritional support, compromising their immune systems and overall health. This irregularity can exacerbate health issues, making it more challenging for PLHIV to maintain the nutritional status needed to manage their condition effectively.

Economic constraints significantly impact patients' ability to adhere to nutritional guidelines. Low income or unemployment makes it difficult for many to afford nutritious foods, affecting their overall health and HIV management. Financial instability often forces patients to prioritize immediate needs like shelter over nutritious food, worsening health issues.

> *"Many patients skip meals, which means they also skip their medication because they are instructed to take it with food. It's a vicious cycle; without proper nutrition, they can't adhere to their treatment, leading to worse health outcomes."* (Healthcare worker)

This observation underscores a critical issue of the direct link between food insecurity and medication adherence. When patients can't afford regular meals, they miss medication doses, compromising their treatment and increasing the risk of higher viral loads and opportunistic infections. Limited access to transportation and the stress of financial instability further hinder their ability to follow medical and nutritional advice.

Staff Turnover.

High staff turnover is a significant issue that disrupts the continuity of care and places additional strain on the remaining staff. In healthcare settings, particularly those dealing with complex conditions like HIV, the consistency and stability of the care team are crucial for maintaining high standards of patient care. Frequent turnover can lead to gaps in knowledge, reduced efficiency, and a heavier workload for the remaining staff, all of which can compromise the quality of care provided to patients. This challenge was particularly evident in one of the clinics, where staff shortage had a significant impact on service delivery.

> *"When you talk about the reduction in healthcare providers going on leave, it significantly affects service delivery because, for example, here at Goba, we have very*

> *few staff members. So, when one staff member leaves, the workload becomes much heavier, especially in serving our clients…. Therefore, staff turnover impacts our adherence to guidelines because you won't be able to do everything that is required for the patient."* (Healthcare worker)

This statement addresses the cascading effects of high staff turnover: it not only increases the immediate workload but also disrupts the implementation of consistent care practices and adherence to treatment guidelines.

4.6. Documentation Challenges.

Poor documentation practices and the absence of specific indicators for nutritional care are significant issues affecting the quality of healthcare services. Incomplete documentation was a recurring problem, with some healthcare providers failing to record necessary nutritional information. This lack of thorough record-keeping creates substantial challenges in monitoring patient progress, tailoring nutritional interventions, and ensuring consistent care across different healthcare visits.

A respondent highlighted this issue, stating, “Documentation of patient records is still a very big challenge because in many hospitals, doctors do not write patient information correctly.” This statement underscores the pervasive problem of inadequate documentation, which can lead to missed opportunities for critical nutritional interventions and follow-ups.

Additionally, there is a noticeable absence of clearly defined indicators for nutritional care within current healthcare protocols, which further exacerbates the issue. This deficiency complicates the assessment of nutritional status and the monitoring of interventions, hindering healthcare providers' ability to effectively tailor nutritional support to individual patient needs. Without standardized indicators, there is a risk of inconsistent care quality and missed opportunities for early intervention, potentially compromising the overall health outcomes of patients receiving care.

> *"Those of us working in the CTC have indicators, so our major task is to engage with those indicators…... We concentrate on working with these indicators. For example,*

> *for viral load suppression, we implement all mechanisms to ensure it increases……. However, for nutrition, we don't have such an indicator, which is a challenge..."*(Healthcare worker)

Hence, facilitators included training and competencies, recognized as crucial for enhancing healthcare providers' knowledge and skills, although it was often inconsistent and project-dependent. Leadership and interdepartmental coordination were vital in promoting adherence to guidelines, with effective leadership providing regular guidance and support to staff. Regular educational sessions for patients were pivotal in increasing understanding and implementation of nutritional care. Challenges identified were financial constraints and inconsistent funding significantly impacted the provision of nutritional supplements and comprehensive patient education. High staff turnover and inadequate training for new staff disrupted continuity of care. Poor documentation practices and the absence of specific nutritional care indicators hindered effective monitoring and implementation of nutritional interventions.

5.0 DISCUSSION

5.1 Discussion of key findings

5.1.1 Level of Adherence to National Guidelines

Only 19.46% of PLHIV received care that fully adhere to the National Nutrition Guidelines, signaling a substantial gap in comprehensive nutritional support for PLHIV in Dar es salaam, Tanzania. Challenges like limited funding, and inadequate record keeping practices have limited successful application of nutritional guidelines in Dar es Salaam. These problems affect both the distribution of supplements and the ongoing, uniform provision of care, which are essential for effective nutritional support. This is significantly lower than the adherence rates reported in other regions, such as Ethiopia ranging 36.3% to 41%, where a standardized approach to nutrition care and support for people living with HIV has been implemented(86).

The study documented the universal implementation of follow-up care and anthropometric assessments, highlighting a well-established protocol for monitoring the physical health of patients. This uniform application underscores the healthcare providers' commitment to baseline nutritional care, but also emphasizes that adherence to this aspect alone is insufficient for holistic patient management. This finding aligns with the World Health Organization's guide on Nutritional care and support for people living with HIV/AIDS(87), which emphasizes the importance of comprehensive care. It also resonates with the findings of a systematic review on interventions to reengage people living with HIV who are lost to follow-up from HIV treatment programs(88).

A particularly concerning finding was the substantial deficiency in the provision of micronutrient supplements, with only 1% of participants receiving these crucial elements of HIV nutritional care. Micronutrients are essential for maintaining immune function and overall health in HIV-infected individuals, and the lack of these supplements' points to significant systemic issues such as supply chain failures, inadequate funding, or perhaps oversight in the operational prioritization within the clinics(87,89). This is a critical area of concern, as the World Health Organization's report on Nutrient requirements for people living with HIV/AIDS underscores the importance of micronutrients in managing HIV/AIDS(90). It also aligns with

the findings of a Cochrane review on micronutrient supplements for non-pregnant adults with HIV infection, which found that micronutrient supplements had no effect on mortality, morbidity, viral load, or CD4 count in adults with HIV infection, although analyses may have been underpowered to detect small effects(91).

Further examination of adherence revealed varying degrees of compliance with different aspects of the nutritional guidelines. Specifically, clinical nutritional assessments were conducted for six out of ten participants, indicating a moderate level of adherence to these guidelines. This moderate adherence suggests that while there is some commitment to evaluating nutritional status among patients, the consistency and thoroughness necessary for achieving optimal patient outcomes might be insufficient. The partial adherence highlights gaps in the implementation process, where some aspects of the guidelines are followed, but others are overlooked, potentially leading to suboptimal nutritional support and health outcomes for patients. This is in line with a study conducted in Ghana, which found that clinical nutritional assessments were performed for a similar proportion of participants(92).

Additionally, less than half of the participants received dietary assessments, side effects monitoring, hygiene assessments, and nutrition counseling, highlighting significant gaps that need addressing to improve the overall nutritional management. The low rates of dietary assessments indicate that many patients do not receive individualized evaluations of their nutritional needs, which are essential for tailoring effective nutritional interventions. Similarly, insufficient monitoring of side effects means that potential adverse reactions to dietary changes or supplements might go unnoticed, posing risks to patient health. The lack of hygiene assessments suggests that critical aspects of food safety and sanitation are being overlooked, potentially leading to preventable illnesses. Furthermore, the scarcity of nutrition counseling sessions deprives patients of vital education and support that could help them adhere to dietary guidelines and make healthier choices. Addressing these gaps requires a concerted effort to ensure that comprehensive nutritional management becomes an integral part of patient care, involving regular assessments, continuous monitoring, and personalized counseling to enhance patient outcomes.

These findings are consistent with a study conducted in Kenya reported that 58% of participants received dietary assessments(93), while a study in Uganda found that only 40% of participants had their side effects monitored(94). In terms of hygiene assessments, a study in South Africa reported that only 35% of participants received such assessments(95). Lastly, regarding nutrition counseling, a study conducted in Uganda reported that 70% of participants received this service(96), which is significantly higher than the rate observed in our study. These comparisons underscore the need for improvements in these areas to enhance the overall care of people living with HIV.

Socio-demographic characteristics also influenced adherence outcomes. Interestingly, adherence was not significantly affected by gender, even though females constituted a large majority of the study population. This is consistent with a study conducted in Italy, which found no significant gender differences in adherence to dietary guidelines(97). The absence of gender-based disparities in adherence suggests that other factors, such as education levels or socioeconomic status, might play a more pivotal role in influencing nutritional compliance. This is aligning with our study where participants with higher educational levels showed better adherence, underscoring the role of personal empowerment and awareness in managing health. This is consistent with a study conducted in the United States, which found that education was associated with higher adherence rates(98). Participants from suburban areas exhibited higher adherence rates compared to their urban counterparts, possibly reflecting differences in lifestyle, healthcare access or socioeconomic factors. These findings contrast with a study conducted in the United States, which found no significant difference in adherence rates between rural and urban adults(99).

The higher adherence rates in suburban areas might suggest that residents in these regions have better access to health education, support networks, or healthcare resources that facilitate adherence to nutritional guidelines. Conversely, urban residents might face challenges such as higher stress levels, time constraints, or more limited access to supportive health services, which could hinder adherence. This disparity highlights the importance of considering residential context when addressing adherence to nutritional care, emphasizing the need for tailored interventions that account for the unique challenges and resources of different areas.

5.1.2 Determinants of Adherence

One of the most striking findings from the study is the significant impact of educational level on adherence. Individuals with higher education levels demonstrated markedly better compliance, highlighting the critical role of health literacy in understanding and implementing health-related guidelines. This is consistent with a study conducted in Ghana, which found that clients with primary education were less likely to be malnourished compared with those with no formal education(92). This suggests that educational interventions could be a pivotal strategy in improving adherence, as better-informed patients are more likely to appreciate the importance of following detailed nutritional and healthcare regimens.

The type of healthcare facility also emerged as a crucial determinant of adherence. Referral hospitals demonstrated the highest adherence rate at 40%, which is likely attributable to their superior resources and specialized staffing, such as the presence of nutritionists. Participants treated in referral hospitals were likely to receive care that follow the guidelines than those in dispensaries. This disparity likely stems from the superior resources available in higher-tier facilities, including more specialized staff and better equipment, which enhance the overall quality of care and adherence to prescribed nutritional guidelines. The enhanced resources and specialized staffing in referral hospitals provide an environment conducive to better adherence, underscoring the importance of resource allocation, staff training, and facility capabilities in influencing adherence to nutritional care guidelines. Conversely, dispensaries, often the first point of contact for many patients, may lack these critical resources, leading to lower adherence rates and highlighting the need for targeted improvements in lower-tier healthcare facilities to ensure consistent and high-quality nutritional care. This finding aligns with a study conducted in Malawi, which reported that patients accessing care from private health facilities had higher adherence rates(100). In contrast, dispensaries, which are often the first point of contact for many patients, displayed the lowest adherence rate at only 10%(100).

Provider type also merged as crucial determinant, participants attended by doctors were more likely to receive care that adhered to the National Guideline for Nutrition Care and Support compared to those attended by nurses. This highlights the influence of provider type on adherence to guidelines, underscoring the need for tailored support and training for healthcare

providers. Ensuring that all provider types receive adequate resources and institutional support can help improve adherence rates to national guidelines. This finding suggests that targeted interventions, including regular supervision and feedback, are essential to enhance consistency and quality of care delivery across different provider types, ultimately improving health outcomes. The interaction between patient age, educational level, and the professional cadre of the healthcare provider highlights the need for targeted interventions that address specific demographic and professional gaps. This aligns with a study conducted in Dar es Salaam, which found that several factors including patient age, educational level, and the professional cadre of the healthcare provider significantly influenced adherence to antiretroviral therapy(101).

Resource availability and institutional support within healthcare facilities crucially impacted adherence. Facilities that were adequately staffed and received regular support supervision and feedback tended to have higher adherence rates. This points to the importance of robust institutional support and resource allocation in facilitating adherence to health guidelines. The presence of sufficient staff, coupled with ongoing support and supervision, ensures that healthcare providers can deliver consistent and high-quality care, thereby promoting better adherence to nutritional guidelines. Conversely, facilities lacking these resources may struggle to maintain the same level of adherence, highlighting the critical role of comprehensive resource allocation and institutional support in achieving optimal health outcomes. This is consistent with a study conducted in Mozambique, which found that healthcare service availability, measured as the type of health facilities and their level of staffing and equipment, significantly influenced the individual decision to seek care(102).

These findings have significant implications for policy and practice. There is an evident need for regular, comprehensive training for healthcare providers across all cadres and continuous health education for patients, emphasizing the critical role of nutritional care in managing HIV(103). This is in line with the World Health Organization's guide on Nutritional care and support for people living with HIV/AIDS, which provides a training course for caregivers and service providers(103). Moreover, enhancing resource allocation to lower-tier health facilities, like dispensaries, could raise adherence levels by equipping them with resources comparable

to those available in higher-tier hospitals(103). This is consistent with a study conducted in Mozambique, which found that healthcare service availability significantly influenced the individual decision to seek care(102).

5.2 Facilitators in Adhering to Guidelines

Training and competencies are critical for ensuring that healthcare providers are adequately equipped to adhere to national nutritional guidelines. Our findings indicate a significant challenge due to the reliance on external funding and project-specific initiatives, which result in inconsistent training schedules. This inconsistency undermines the effectiveness of training programs and could be addressed by adopting a model that provides continuous, independent training. This approach aligns with the World Health Organization's guidelines on Nutritional care and support for people living with HIV/AIDS, which advocate for regular training courses for caregivers and service providers(87). The importance of robust training programs is further underscored by evidence from a series of studies, systematic review published by Sunguya et.al 2013 found that health workers' nutrition knowledge significantly improved following training, which is crucial for the effective implementation of nutritional care(104). Similarly, improvements in nutrition counseling were noted in studies analyzed by the same publication, indicating a direct benefit of training on healthcare delivery(104). These findings are consistent with our study's emphasis on the necessity for continuous education and training.

Organizational support within healthcare facilities emerges as a significant facilitator, with effective leadership playing a pivotal role. Strong supervision systems, clear guideline provision, and robust feedback mechanisms are identified as key components that enhance adherence. Leadership’s proactive engagement in monitoring and evaluation further strengthens this process, ensuring adherence anomalies are promptly corrected, thus maintaining high-quality nutritional care. This proactive stance ensures that any deviations from established protocols are quickly addressed, maintaining the integrity and quality of nutritional care. Additionally, robust feedback mechanisms provide continuous improvement opportunities by allowing staff to communicate challenges and receive guidance, thereby enhancing overall adherence rates. This is in line with a study conducted in Mozambique,

which found that healthcare service availability, measured as the type of health facilities and their level of staffing and equipment, significantly influenced the individual decision to seek care(102).

Interdepartmental coordination is essential for integrated patient care. The study shows that well-coordinated efforts across various departments ensure comprehensive management of a patient's health, including their nutritional needs. This synergy is particularly critical for HIV patients who require multifaceted care approaches to manage their complex health requirements effectively(87). This is consistent with a study conducted in Mozambique, which found that healthcare service availability, measured as the type of health facilities and their level of staffing and equipment, significantly influenced the individual decision to seek care(102).

Patient education is a cornerstone in fostering better health outcomes. Regular, educational sessions that educate patients on the significance of nutrition in disease management play a crucial role in enhancing patient engagement and adherence to nutritional regimes. By understanding the direct impact of nutrition on their health, patients are more likely to follow dietary advice and make informed food choices. Systematically integrating these educational initiatives into routine healthcare interactions ensures that patients consistently receive health information. This consistent reinforcement helps build a strong foundation of knowledge, empowering patients to take an active role in managing their health. This is in line with a study conducted in Nigeria, which found that patients accessing care from private health facilities had higher adherence rates(105). This suggests that patient education, whether through individual counseling or group education sessions, can significantly impact the adherence to nutritional guidelines.

5.2.1 Barriers in Adhering to Guideline.

Despite the positive facilitators, the study also unveils significant resource limitations. Inconsistencies in the availability of essential resources, notably nutritional supplements, directly impact the quality of care. These shortages, often exacerbated by funding issues, highlight the need for developing sustainable financial strategies to ensure

uninterrupted nutritional support. This is consistent with a study conducted in Mozambique, which found that healthcare service availability, measured as the type of health facilities and their level of staffing and equipment, significantly influenced the individual decision to seek care(102).

Staffing turnover and shortages are significant barriers that contribute to increased workloads and potential caregiver burnout within healthcare settings. High turnover rates can disrupt continuity of care and strain remaining staff members, while shortages exacerbate workload pressures. Strategic workforce planning and enhanced support systems are crucial in addressing these challenges and ensuring continuous, high-quality patient care. By implementing strategic workforce planning, healthcare facilities can anticipate staffing needs, improve recruitment and retention strategies, and optimize staff deployment to mitigate the impacts of turnover and shortages. Additionally, enhancing support systems, such as providing regular supervision, training opportunities, and mental health resources, can help alleviate workload stress and prevent caregiver burnout. These proactive measures not only support the well-being of healthcare providers but also contribute to improved patient outcomes by maintaining consistent and effective healthcare delivery. This is in line with a study conducted in Uganda, which found that healthcare service availability, measured as the type of health facilities and their level of staffing and equipment, significantly influenced the individual decision to seek care(106,107).

Documentation challenges significantly detract from the quality of nutritional care. Poor practices in documenting patient care impede the effective monitoring and tailoring of nutritional interventions, which is essential for improving adherence to dietary guidelines. Inadequate documentation can lead to gaps in patient history, missed opportunities for timely interventions, and inconsistent application of care protocols. Enhancing documentation through the implementation of standardized practices and the establishment of specific nutritional care indicators can substantially improve patient management. Standardized documentation practices ensure that all relevant patient information is accurately recorded and readily accessible, facilitating better coordination among healthcare providers. This is consistent with findings that show structured documentation systems, including electronic

health records (EHRs), can lead to better patient outcomes by providing clear and accessible patient data for healthcare providers(108). Standardized documentation also facilitates research and quality improvement initiatives by ensuring data completeness and accuracy(108).

Economic constraints significantly influence patients' ability to adhere to nutritional guidelines. Financial difficulties often force individuals to prioritize other immediate needs over their nutritional requirements, leading to the neglect of their dietary needs. This economic strain can result in patients opting for cheaper, less nutritious food options, skipping meals, or foregoing dietary supplements necessary for maintaining their health. Consequently, inadequate nutrition can exacerbate existing health conditions, impede recovery, and ultimately lead to poorer health outcomes. Addressing these economic barriers is crucial to improving adherence to nutritional guidelines and ensuring that patients can access and afford the dietary resources they need for optimal health. This relationship is supported by a study discussing the causality between healthcare expenditure and economic growth, suggesting that economic hardships can lead to reduced health care spending and poorer health outcomes (109). Integrated support services that offer both nutritional and economic assistance are crucial for overcoming these barriers(110,111). These services ensure that patients do not have to choose between basic survival and following their healthcare protocols which can significantly enhance patients' ability to meet their nutritional needs and maintain better health.

5.3 Strengths and weakness of the study

5.3.1 Strengths of the Study

Focus on Provider and Patient Perspectives: The study's dual perspective approach, incorporating insights from both healthcare providers and patients, allows for a comprehensive understanding of adherence to nutritional guidelines. This method highlights not only the operational and systemic determinants of adherence but also reflects the lived experiences and challenges faced by people living with HIV in adhering to these guidelines.

Validation with Observation: By utilizing observation checklists in addition to patient exit interviews, the study ensures a higher level of data validity. This approach minimizes reliance

on self-reported data, which can be prone to biases, and provides a more accurate assessment of adherence behaviors and practices within CTC clinics.

Use of Standardized Tools and Guidelines: The study employs standardized tools and definitions as recommended by the Tanzania Demographic Health Survey (TDHS), Tanzania Food and Nutrition Center (TFNC), and USAID and FANTA rapid evaluation of facility NACS tool guide. This ensures consistency in data collection and enhances the reliability and comparability of the findings.

Piloting of Tools: Conducting a pilot study to pre-test the tools and interview guides at selected dispensaries allowed for the refinement of these instruments. This process ensured that the questions were clear, relevant, and capable of capturing the necessary data, thus enhancing the study's overall methodological robustness.

Limitations of the Study

External Validity: Despite its robustness within the Dar es Salaam setting, the findings may have limited applicability to other regions due to differences in healthcare infrastructure, patient populations, and local policies. The unique characteristics of Dar es Salaam, such as its status as a major economic hub with established healthcare infrastructure, might not reflect conditions in more rural or less developed areas of Tanzania.

Response Bias: There is a potential for response bias, particularly in the self-reported data from patients and healthcare providers. Participants might provide socially desirable responses or may not recall past events accurately, which could affect the accuracy of the data collected. This bias is mitigated to some extent by the observational component, but it remains a potential limitation.

6.0 CONCLUSION AND RECOMENDATION

6.1 Conclusion

The study has illuminated significant gaps in the adherence to national nutritional guidelines among people living with HIV in Dar es Salaam, with only 19.46% receiving fully compliant nutritional care. This is starkly lower compared to adherence levels in similar studies elsewhere, highlighting a critical area for improvement. The research underscored a robust implementation of follow-up care and anthropometric assessments, indicating a foundational commitment to monitoring patient health. However, the severe shortfall in the provision of essential micronutrient supplements signals a systemic failure that may involve supply chain issues, funding inadequacies, or oversight within clinic operations.

Variations in adherence across different healthcare facility types also suggest that resource distribution, staff training, and facility capabilities are decisive factors in guideline compliance. Socio-demographic elements such as educational levels and geographical location of patients further influenced adherence outcomes, pointing to the nuanced challenges in managing health within diverse patient populations. Addressing these gaps is essential for achieving the UNAIDS 95-95-95 targets. By focusing on improving adherence to nutritional guidelines and enhancing the overall quality of care, we can work towards better health outcomes for individuals and contribute to the broader goal of controlling the HIV epidemic in the region.

6.2 Recommendations

Enhancing training and education for healthcare providers is crucial. Continuous and comprehensive training programs should be established, independent of external funding, to ensure that healthcare providers maintain a standard of care. Regular training sessions will keep healthcare workers up-to-date with the latest nutritional guidelines and best practices, enabling them to provide optimal care to people living with HIV.

Strengthening resource allocation to lower-tier health facilities is essential. Dispensaries and other primary care centers should be equipped with resources comparable to those available in referral hospitals. This includes ensuring the availability of trained staff, necessary equipment,

and adequate supplies. Improving resource allocation will help raise adherence levels and ensure that all facilities can provide high-quality nutritional care.

Expanding patient education efforts is vital to improve adherence to nutritional guidelines. Integrating nutrition education into routine patient care can enhance patients' understanding and engagement with their nutritional care plans. Educational initiatives should be consistent and tailored to the unique needs of different patient demographics. This approach will help patients appreciate the importance of nutrition in managing their health and encourage them to adhere to prescribed nutritional regimens.

Addressing systemic barriers within the healthcare system is necessary to resolve issues related to the supply of micronutrients and other essential supplements. Developing sustainable financial strategies and improving supply chain management can ensure a consistent availability of these crucial resources. By addressing these barriers, healthcare providers can offer comprehensive nutritional support to people living with HIV.

Improving data quality and documentation practices is crucial for effective patient management. Implementing standardized documentation practices and specific indicators for nutritional care will enhance the accuracy and reliability of patient records. Better documentation will allow for more precise monitoring of patient progress and tailoring of nutritional interventions, ultimately leading to improved health outcomes.

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8.0 APPENDICES.

8.1 APPENDIX I: INFORMED CONSENT (ENGLISH)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES (MUHAS)

DIRECTORATE OF RESEARCH AND PUBLICATIONS MUHAS: INFORMED CONSERT

STUDY NUMBER:

CONSENT FORM FOR PARTICIPATING IN A RESEARCH STUDY

INTRODUCTION

You are being asked to take part in this research study because you are a patient or healthcare provider who receive/provide nutrition care and support at the CTC clinics. This study is being conducted by **Felistar W. Mwakasungura** from Muhimbili University of Health and Allied Sciences (MUHAS) as the fulfillment for her postgraduate study (Master of Science in Project Management, Monitoring and Evaluation in Health); the supervisors for this study are **Prof. Bruno Sunguya** and **Rebecca Mkumbwa** from MUHAS, Dar es Salaam Tanzania.

Participants in research studies are only those who voluntarily decide to participate. Please take your time reading this permission form and consider your options. This consent form must be signed and dated by you if you wish to participate in the study. One copy will be yours to keep. Please don't hesitate to ask questions about any terms or information you are unsure about.

RESEARCH TITLE:

"*Evaluation on Adherence levels to National Nutrition Guidelines for Nutrition Care and Support of PLHIV attending CTC clinics in Dar es salaam and identifying factors influencing its adherence***".**

THE PURPOSE OF THE STUDY

This study aims to evaluate on adherence levels to the national nutrition guidelines for Nutrition care and support of PLHIV attending CTC clinics in Dar es salaam, Tanzania.

PARTICIPATION

Dear, Participant I would like you to take part in this research. Because you fulfilled the requirements for the study's topic, you were chosen. The application of interviewer guides will be implemented, and every effort will be made to preserve confidentiality. Hopefully, it'll be receptive to giving the researcher access to your data. I urge you to kindly do not hesitate to ask questions at any time if you have any about this research.

CONFIDENTIALITY

No unauthorized individual will be able to access your information, and all details and matters pertaining to your involvement in the study will be kept private. Upon completion of the interview procedure, the data will be securely destroyed (encrypted) to protect study confidentially. Moreover, your identities will not appear in the written version of the research findings to maintain anonymity.

RIGHT TO DECLINE OR DEPART.

Participation in this study is entirely voluntary on your behalf. Furthermore, you are not obligated to talk about anything and can end the interview at any time. Nonetheless, your feedback is crucial to our research.

ADVANTAGES.

Participating in this study will not directly benefit you, nevertheless it will yield valuable information for future interventions aimed at improving nutrition care and support for people living with HIV.

RISKS

There will be no harm to you as a result of participation in this study although some questions will be personal which might trigger your emotions and attentions.

WHOM TO CONTACT

If you ever have questions about this study you may call, the Chairperson of the (Research and Publications Committee, MUHAS. P.O. Box 65001, Dar es Salaam-Tanzania **255 0222151596**.

DECLARATION

I have understood and read the contents of this form and the purpose of this research. I agree to participate in this study kindly sign this form.

Interviewee's Signature _____Date_____ Time _____

Interviewer signature _____Date _____Time _____

8.2 APPENDIX II: INFORMED CONSENT (Kiswahili).

FOMU YA RIDHAA YA MSHIRIKI WA UTAFITI

CHUO KIKUU CHA AFYA NA SAYANSI VISHIRIKA MUHIMBILI

MKURUGENZI YA UTAFITI NA MACHAPISHO MUHAS: FOMU YA RIDHAA YA KUSHIRIKI UTAFITI

NAMBARI YA FOMU: _____

FOMU YA RIDHAA YA KUSHIRIKI KATIKA UTAFITI UTANGULIZI

Unaombwa kushiriki katika utafiti huu kwa sababu wewe ni kwa sababu wewe ni mgonjwa au mtoa huduma ya afya ambaye unapokea/kutoa huduma ya lishe na usaidizi katika kliniki za CTC. Utafiti huu unafanywa na **Felistar W. Mwakasungura** kutoka Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili (chuo kikuu cha Muhimbili) kama utimilifu wa utafiti yake ya Shahada ya Uzamili (Shahada ya Uzamili ya Sayansi katika Usimamizi wa Miradi, Ufuatiliaji na Tathmini katika Afya); wasimamizi wa utafiti huu ni **Prof. Bruno Sunguya,** na **Rebecca Mkumbwa** kutoka chuo kikuu cha Muhimbili, Dar es Salaam Tanzania.

Katika utafiti huu ushiriki kwako ni kwa hiari yako, kuna maelezo katika fomu hii ya kuomba ridhaa yako tafadhali naomba uisome kwa uangalifu na tumia muda wako wa kutosha kuelewa na kufanya maamuzi yako. Ukiafikia kukubali kushiriki katika utafiti huu naomba unisaidie kuweka sahihi na tarehe yako katika fomu yetu ya ridhaaa. Pamoja na hayo tutakupa nakala moja ya hii fomu ubaki nayo. Kama utakuwa na maswali yoyote kuhusu utafiti huu, naomba uwe huru kuuliza ili upatiwe maelekezo Zaidi

KICHWA CHA UTAFITI:

"Tathmini ya viwango vya ufuasi wa Mwongozo wa Kitaifa wa Lishe kwa Huduma ya Lishe na Msaada wa WAVIU wanaohudhuria kliniki za CTC jijini Dar es salaam na kubainisha mambo yanayoathiri ufuasi wake".

DHUMUNI LA UTAFITI

Dhumuni la utafiti huu unalenga kutathmini viwango vya ufuasi wa miongozo ya kitaifa ya

lishe kwa huduma ya Lishe na msaada kwa WAVIU wanaohudhuria kliniki za CTC jijini Dar es salaam na kubainisha mambo yanayoathiri ufuasi wake.

USHIRIKI

Ikiwa umeelewa maelezo na umekubali kushiriki katika utafiti huu, vigezo vyote vya utafiti umetimiza kuhusiana na utafiti huu. Mahojiano yataanza kufanyika kufuatisha muongozo wa dodoso utakao tusaidia kuuliza maswali amabayo yanaweza kujibu maswali ya utafiti wetu. Ni matumaini yangu utakuwa tayari kusikiliza na kujibu majibu maswali hayo na kama utakuwa na maswali yako binafsi kuhusu utafiti huu tafadhali unakaribishwa kuuliza pia.

USIRI

Maelezo yote tutayoyapata kutoka kwako katika utafiti huu yatahifadhiwa kwa siri na hakuna mtu yoyote ambae hayupo kwenye huu utafiti mwenye ridhaa ataweza kuangalia au kusoma maelezo yako.Usahili utakapo malizika, taarifa zote zitawekwa kwenye mfumo siri na salama ilikuhakikisha usiri wa maelezo yako katika utafiti huu.

HAKI YA KUSHIRIKI AU KUJIONDOA.

Kuendelea kushiriki katika utafiti huu ni kwa hiari la chaguo lako. Ikiwa kuna jambo hutaki kuliongelea pia kuhusiana utafiti au hujaelewa vizuri una haki ya kuuliza and kutoshiriki kuendelea na mahojiani wakati wowote ule.

FAIDA.

Katika utafiti huu hakutawa na manufaa kwako ya moja kwa moja kutokana na kushiriki katika mahojiano haya, ingawa taarifa na maelezo utakayo yatoa tutayatumia kwa ajili kuimarisha utelekezaji wa huduma ya lishe kwa watu wanaoishi na VVU.

HATARI

Katika huu utafiti hamna madhara yatakayo kupata kutokana na matokeo ya kushiriki kwenye utafiti huu japokuwa kuna maswali machache ambayo ni kibinafsi ambayo yanaweza kuibua hisia na usikivu wako.

NANI WA KUWASILIANA NAYE

Kama utakuwa na maswali yoyote kuhusiana na huu utafiti, unakaribishwa kuwasiliana na Mwenyekiti wa Kamati ya Utafiti na Machapisho chuo kikuu cha Muhimbili, S.L.P 65001, Dar es Salaam-Tanzania; au kwa simu nambari: **255 0222151596.**

MAKUBALIANO.

Nimeelewa na kusoma maelezo yote kwenye hii fomu na dhumuni la utafiti nimeelewa, na nimekubali kushiriki kwenye utafiti huu.

Sahihi ya Mhojiwa ___Tarehe_Muda _

Sahihi ya mhojaji ____Tarehe _____Muda _

8.3 Appendix III; For Objective 1 and Objective 2, for patient.

OBSERVATION CHECKLIST ADOPTED FROM USAID & FANTA NACS evaluation tool.
Questionnaire adopted from TDHS and THIS.
SECTION A.

THE OBSERVATION OF THE PROVIDER-CLIENT INTERACTION.
THIS TOOL IS USED TO CONDUCT A SPECIFIED NUMBER OF OBSERVATIONS IN EACH FACILITY. CONSENT MUST BE OBTAINED FROM THE PROVIDER AND THE CLIENT.
FACILITY INFORMATION
01 NAME OF FACILITY_____ FACILITY CODE ..... 02 NAME OF UNIT_____ UNIT CODE ..... 03 DISTRICT_____ DISTRICT CODE ..... 04 TYPE OF FACILITY_____ TYPE OF FACILITY CODE .....
PROVIDER INFORMATION
06 PROVIDER TYPE CODE ..... ☐☐ 07 SEX OF PROVIDER (1=MALE; 2=FEMALE) .....
OBSERVATION INFORMATION
08 DATE ..... Day Month Year 09 OBSERVER NAME_____ OBSERVER CODE ..... ☐☐

Provider Code.

PEDIATRICIAN..... 1
OB/GYN 2
GENERAL PHYSICIAN..... 3
MEDICAL OFFICER..... 4
NURSE..... 5
MIDWIFE.....6
NURSING ASSISTANT, AID, AUXILLIARY 7
NUTRITIONIST 8
HEALTH EDUCATOR / SOCIAL WORKER / COUNSELOR 9
COMMUNITY HEALTH AGENT.....10

CHECKLIST FOR OBSERVATION.

OBSERVE THE PROVIDER'S ACTIONS AND INTERACTIONS WITH THE CLIENT. EACH OBSERVATION POINT, MARK:

- 0 (NO), THE PROVIDER DID NOT PERFORM THE ACTION;
- 1 (YES), YOU OBSERVED IT AND IT WAS DONE POORLY, INCORRECTLY, OR ONLY PARTIALLY;
- 2 (YES), YOU OBSERVED IT AND IT WAS DONE WELL AND COMPLETELY;
- 8 FOR "DON'T KNOW" IF YOU WERE UNABLE TO OBSERVE THE ENTIRE ACTION; OR
- 9 IF IT IS "NOT APPLICABLE (NA)". NOTE THAT THIS OPTIONAL RESPONSE SHOULD ONLY BE USEDWHERE THE CODE IS PROVIDED AND THE CELL IS NOT SHADED.

NO.	ACTION	YES, DONE WELL(2)	YES, DONE POORLY, INCORRECTLY, OR PARTIALLY (1)	NOT DONE(0)	DK (8)	NA (9)	REMARKS
ASSESSMENT							
01.	RECORD SEX OF THE CLIENT HERE.	MALE ..... 1 FEMALE..... 2					
CLIENT'S WELL BEING							
02.	Did the healthcare provider inquire about the patient's reason for visiting?	2	1	0	8		
03.	NOTE THE PURPOSE. AFFECTION: AFTER THE CONSULTATION, REVIEW THE CLIENT CHART OR THE PROVIDER'S NOTES.	_____ _____					
04.	Did the healthcare provider verify the client's age or check the age that was noted on another document in the facility?	2	1	0	8		
05.	INSERT THE CLIENT'S BIRTH DATE HERE. EXAMINING THE CLIENT CHART OR THE PROVIDER'S NOTES FOLLOWING THE	DAY ..... MONTH ..... YEAR					

	CONSULTATION MAY BE NECESSARY FOR THIS.	..... ☐☐☐☐ NOT AVAILABLE.....999					
06.	RECORD THE CLIENT'S AGE HERE. IFNEEDED, REVIEW THE CLIENT CHART OR THE PROVIDER'S NOTESAFTER THE CONSULTATION. CIRCLETHE CODE INDICATING IF THE AGE IS RECORDED IN MONTHS OR YEARS, THEN RECORD AGE IN THE SPACE PROVIDED. CIRCLE '999' IF THE AGE IS NOT AVAILABLE.	A. AGE IN MONTHS.....1 B. AGE IN YEARS .....2 NOT AVAILABLE.....999					
07.	Did the healthcare provider weigh the patient or check the weight recorded elsewhere in the building?	2	1	0	8		
08.	NOTE THE WEIGHT AND UNIT OF MEASUREMENT (E.G., METERS, CENTIMETERS) OF THE CLIENT HERE. EXAMINING THE CLIENT CHART OR THE PROVIDER'S NOTES FOLLOWING THE CONSULTATION MAY BE NECESSARY FOR THIS.	WEIGHT .....☐☐☐. .. UNIT OF MEASURE ....._____ NOT AVAILABLE.....999					
09.	Did the healthcare worker take the client's height and/or length measurements, or did they check them elsewhere in the building?	2	1	0	8		
10.	INSERT THE CLIENT'S HEIGHT AND UNIT OF MEASUREMENT (E.G., POUNDS, KILOGRAMS) HERE. AFTER THE CONSULTATION, REVIEW THE CLIENT CHART OR THE PROVIDER'S NOTES, IF NEEDED.	HEIGHT .....☐☐☐. ... UNIT OF MEASURE ....._____ NOT AVAILABLE.....999					

11.	Did the healthcare worker assess the client's MUAC or go over the MUAC measured somewhere else in the building?	2	1	0	8		
12.	MUAC AND UNIT OF MEASUREMENT (E.G., CENTIMETERES) OF THE CLIENT SHOULD BE NOTED HERE. AFTER THE CONSULTATION, REVIEW THE CLIENT CHART OR PROVIDER'S NOTES, IF NEEDED.	MUAC..... | | | . ..... UNIT OF MEASURE ....._____ NOT AVAILABLE.....999					
13.	Did the health worker categorize the nutritional status or evaluate a previous classification made in the facility?	2	1	0	8		
14.	MARK THE CODE CORRESPONDING WITH THE PROVIDER'S CLASSIFICATION OF THE CLIENT'S NUTRITIONAL STATUS. IF NEEDED, REVIEW THE CLIENT CHART OR THE PROVIDER'SNOTES AFTER THE CONSULTATION.	SEVERELY MALNOURISHED ..... 1 MODERATELY MALNOURISHED ..... 2 NORMAL ..... 3 OVERWEIGHT ..... 4 OBESE ..... 5 OTHER ..... 6 SPECIFY: _____ NOT CLASSIFIED..... 9					
15.	Did the health care worker examine the client's results from screenings conducted elsewhere in the facility or check the client for anemia (pale palms or inner eyelids)?	2	1	0	8		
16.	Did the healthcare worker give or distribute any advice regarding nutrition, including how to feed or eat?	2	1	0	8		

17.	Did the healthcare worker recommend community-based nutrition support services to the client?	2	1	0	8		
18	Did the healthcare provider refer a community-based health care provider to the client??	2	1	0	8		

SECTION B.

Patient demographics and disease specific.		
1.	Patient sex	a) Female b) Male
2.	In what month and year where you born?	Month . . . . Don't Know Month. ……..98 Year . . . . . . Don't Know Year ……. . 9998
3.	Where do you live?	Urban……..1 Rural……2
4.	Have you ever attended school?	Yes . . . . . .1 No 2
5.	What is the highest level of school you attended: Primary, secondary, or higher?	Primary . . . . . 1 Secondary . . . . . .2 Higher 3
6.	Have you done any work in the last 12 months for which you received cash or goods as payment?	Yes = 1 No = 2 Don't Know = 8 Refused = 9
7.	Have you done any work in the last seven days for which you received cash or goods as payment?	Yes = 1 No = 2 Don't Know = 8 Refused = 9
8.	What is your marital status now: are you widowed, divorced, or separated?	Never Married……1 Married……..2 Living together. . . . . 3 Divorced/separated . . . . . 4 Widowed……5
9.	What month and year did (NAME) last see a doctor, clinical officer or nurse for HIV medical care	Month . . . . Don't Know Month. ……..98 Year . . . . . . Don't Know Year ……. . 9998
10.	Has (NAME) ever had a CD4 count test? The CD4 count tells you how sick you are with HIV and if you need to take ARVs or other HIV medications	Yes = 1 No = 2 Don't Know = 8 Refused =9
11.	What month and year was (NAME) last tested for his/her CD4 count?	Month . . . . Don't Know Month. ……..98 Year . . . . . . Don't Know Year ……. . 9998 Count …….

SECTION C.

Adherence Level; based on TFNC recommendation and Index Measuring Scoring		
NO	QUESTION	RESPONSE
1.	Did the healthcare worker conduct a clinical assessment?	Yes = 1 No = 0 Don't Know = 8
2.	Did the healthcare worker conduct anthropometric assessment?	Yes = 1 No = 0 Don't Know = 8
3.	Did the healthcare worker conduct biochemical assessment?	Yes = 1 No = 0 Don't Know = 8
4.	Did the healthcare worker conduct a dietary assessment?	Yes = 1 No = 0 Don't Know = 8
5.	Did the healthcare worker explain to you about the side effects of medications and dietary management?	Yes = 1 No = 0 Don't Know = 8
6.	Did the healthcare worker advise you on food and water safety and hygiene?	Yes = 1 No = 0 Don't Know = 8
7.	Did the healthcare worker give counsel about nutrition and HIV?	Yes = 1 No = 0 Don't Know = 8
8.	Did the healthcare worker give you any micronutrient supplements?	Yes = 1 No = 0 Don't Know = 8
9.	Did the healthcare worker scheduled you for follow up care?	Yes = 1 No = 0 Don't Know = 8

Appendix IV: For Objective 2 Health Facility Unit In charge/Manager.
Questionnaire adopted from USAID & FANTA rapid evaluation tool on NACS.

FACILITY INFORMATION			
01	NAME OF FACILITY_____	FACILITY CODE……	
02	PATIENT VOLUME_____		
03	DISTRICT__	DISTRICT CODE……..	
04	TYPE OF FACILITY_____	TYPE OF FACILITY CODE……	
INTERVIEW INFORMATION			
05	DATE……..……Day Month Year		☐☐☐☐
06	INTERVIEWER NAME____	INTERVIEWER CODE…….……	

EQUIPMENT AND TOOLS FOR ASSESSMENT OF NUTRITION STATUS			
Now I would like to ask you questions about the equipment and tools available in your facility for providing nutrition services.			
01.	Is an adult weighing scale available in your facility? IF YES, ASK: Is it assigned to this facility or shared with another facility?	YES, ASSIGNED 1 YES, SHARED 2 NO 3 N/A 9	☐ 111_1 ☐ 111_1
02.	How many are in working condition? RECORD THE NUMBER IN THE SPACE PROVIDED. FILL IN LEADING ZEROES AS NECESSARY. RECORD '88' IF NOT KNOWN.	☐☐	
03.	RECORD THE DAY, MONTH, AND YEAR OF THE LAST CALIBRATION IF UNKNOWN, RECORD '88' OR '8888' IN THE BOXES PROVIDED.	DAY..... MONTH..... **YEAR.....** ☐☐☐☐☐	
04.	Is a stadiometer (for adults) available in your facility? IF YES, ASK: Is it assigned to this facility or shared with another facility?	YES, ASSIGNED 1 YES, SHARED 2 NO 3 N/A 9	☐ 113_1 ☐ 113_1

05.	How many are in working condition?? RECORD THE NUMBER IN THE SPACE PROVIDED. FILL IN LEADING ZEROES AS NECESSARY. RECORD '88' IF NOT KNOWN.	☐☐	
06.	Is a MUAC tape for adults available in your facility? IF YES, ASK: Is it assigned to this facility or shared with another facility?	YES, ASSIGNED 1 YES, SHARED 2 NO 3 N/A 8	☐ 115_1 ☐ 115_1
07.	How many are available? RECORD THE NUMBER IN THE SPACE PROVIDED. FILL IN LEADING ZEROES AS NECESSARY. RECORD '888' IF NOT KNOWN.		

HUMAN RESOURCES	
Now I am interested in asking you questions about human resources and human resource management.	
01.	First, could you tell me how many of each kind and cadre of health workers are employed by this facility? The only medical professionals that interest me are those that work for this particular hospital. Volunteers and workers on secondment are not included in this. A. READ THE PROVIDER CADRE, THEN ASK: How many PROVIDERCADRE are allocated to the [UNIT NAME] unit? IN THE ALLOCATED SPACE, NOTE THE NUMBER OF PROVIDERS. If the respondent is unsure, note "99." B. NEXT ASK: Does [PROVIDER TYPE] usually provide nutrition services in this facility? EXPLAIN: By nutrition services, I mean assessment of nutritional status, nutrition counseling, nutrition support, and/or referral to nutrition support services. NOTE HOW MANY PROVIDERS ARE USUALLY AVAILABLE IN THE ALLOCATED SPACE TO PROVIDE NUTRITION SERVICES FOR? Make a note of "99" if the respondent is unsure. C. FINALLY, ASK: Has [PROVIDER TYPE] been trained to provide nutrition services in this facility? EXPLAIN: By training, I mean pre-service or in-service training. RECORD THE NUMBER OF PROVIDERS THAT HAVE BEEN TRAINED IN PROVIDING NUTRITION SERVICES IN THE SPACE PROVIDED. IF THE RESPONDENT DOES NOT KNOW, RECORD '99'. Note: Revise provider types/cadres and units as well as the type of training as appropriate for the country context and evaluation objectives.

Provider Type / Cadre		A. How many [PROVIDER TYPE] are assigned to the [UNIT NAME] unit?			B. How many [PROVIDER TYPE] usually provide nutrition services in the [UNIT NAME] unit?			C. How many [PROVIDER TYPE] have been trained in the past three years to provide nutrition services in the [UNIT NAME] unit?		
		[UNIT NAME]			[UNIT NAME]			[UNIT NAME]		
		(a) ANC	(c) PEDIATRIC	(d) HIV/TB	(a) ANC	(c) PEDIATRIC	(d) HIV/TB	(a) ANC	(c) PEDIATRIC	(d) HIV/TB
125_1	PEDIATRICIAN									
125_2	OB/GYN									
125_3	GENERAL PHYSICIAN									
125_4	MEDICAL OFFICER									
125_5	NURSE									
125_6	MIDWIFE									
125_7	NURSING ASSISTANT, AID, AUXILLIARY									
125_8	NUTRITIONIST									
125_9	HEALTH EDUCATOR / SOCIAL WORKER / COUNSELOR									

MENTORING / COACHING/TRAINING			
Now I would like to ask you about mentoring/coaching/training conducted in this facility.			
01.	Are healthcare staff members at this medical facility ever supervised, coached, or trained in providing nutrition services?	YES 1 NO 2 DON'T KNOW 8	
	IF YES, ASK: Could you explain the training, coaching, and mentorship that you received? IF NOT, QUESTION WHY NOT?		

SUPERVISION & FEEDBACK			
Next, I would like to ask you about any supervision of health providers that is conducted in this facility.			
01.	Do those working with nutrition services in this facility ever have supervision?	YES 1 NO 2 DON'T KNOW 8	 □130 □130
	IF YES, ASK: Could you describe the supervisory visits? IF NO, ASK: Why not?		
02.	How many times in the past year have nutrition service providers in this facility been supervised?	NEVER 0 ONCE 1 2-3 TIMES 2 4-5 TIMES 3 ≥ 6 TIMES 4 DON'T KNOW 8	
03.	Are nutrition service providers given feedback—positive or negative—based on their supervision?	YES 1 NO 2 DON'T KNOW 8	

8.4 Appendix V. For Objective 3 and 4 Healthcare worker.

INTERVIEW NO: ……
STARTING TIME: ……

HEALTHCARE PROVIDER PERSONAL INFORMATION.

1. Current Age……
2. Gender ……
3. What is your profession……
4. How many years have you worked in the CTC clinic?.....

Facilitators

- Regular training programs:

How often do you get access to regular training programs on the National Guideline for Nutritional Care and Support of People Living with HIV? what do you think is lacking for your competencies? How helpful have these training programs been in helping you to adhere to the guidelines? probe

- Supportive leadership:

Does your leadership team promote a culture of adherence to the guidelines? What are some specific ways that your leadership team supports you in implementing the guidelines?

- Integration of nutritional care:

How is nutritional care integrated into other healthcare services at your clinic? How does this integration help you to provide more comprehensive care to your patients?

- Peer support networks:

Are there any peer support networks available to people living with HIV in your area? How can these networks be leveraged to support adherence to the guidelines?

- Patient education initiatives:

What patient education initiatives are in place at your clinic to help people living with HIV understand the importance of good nutrition and how to follow the guidelines? How effective have these initiatives been?

- Availability of resources:

Do you have access to the resources (e.g., staff, time, funding, equipment, supplies) you need to effectively implement the guidelines? How do any resource limitations impact your ability to adhere to the guidelines?

Challenges

- Staff turnover:

Can you describe any challenges you have faced with staff turnover? What impact has this had on your ability to adhere to the guidelines?

- Lack of funding for nutritional assistance:

Can you describe any challenges you have faced with lack of funding for nutritional assistance? What impact has this had on your ability to adhere to the guidelines?

- Work environment barriers:

Can you describe any work environment barriers that have hindered your ability to effectively implement the guidelines? (e.g., high patient load, time constraints, poor infrastructure, shortage of supplies, heavy workload)

- Inconsistent policy implementation:

Can you describe any challenges you have faced with inconsistent policy implementation across CTCs? What impact has this had on your ability to adhere to the guidelines?
Interviewee's Opinions.

- What are your recommendations for improving the implementation of the National Guideline for Nutritional Care and Support of People Living with HIV in CTC clinics?
- What are your hopes for the future of nutrition care for people with HIV in Tanzania?
- Are there any other challenges that have hindered your ability to adhere to the guidelines?

TIME END: ……..

8.5 Kiambatisho VI: Swahili Version.

ORODHA YA UCHUNGUZI ILIYOPITISHWA KUTOKA USAID & FANTA NACS zana ya kutathmini.
Hojaji iliyopitishwa kutoka TDHS na THIS.
SEHEMU A.

UANGALIZI WA MWINGILIANO KATI YA MTOAJI NA MTEJA.
ZANA HII HUTUMIWA KUFANYA MAANGALIZO YA NAMBA 9 MAALUM KATIKA KILA KITUO. IDHINI LAZIMA IPATWE KUTOKA KWA MTOAJI NA MTEJA.
HABARI ZA KITUO
01 JINA LA KITUO_____ MSIMBO WA KITUO..... 02 JINA LA KITENGO_____ MSIMBO WA KITENGO ..... 03 WILAYA_____ MSIMBO WA WILAYA..... 04 AINA YA KITUO _____ AINA YA MSIMBO WA KITUO ……
TAARIFA ZA MTOAJI AFYA
05 MSIMBO WA MTOAJI AFYA .....☐☐ 06 JINSIA YA MTOAJI AFYA (1=KIUME; 2=KIKE) .....
TAARIFA ZA UCHUNGUZI
07 TAREHE ..... Siku Mwezi Mwaka 08 JINA LA MWANGALIZI_____ MSIMBO WA MWANGALIZI..... ☐☐

MSIMBO WA MTOAJI AFYA

Daktari wa watoto.....1	MkungaE 6
Daktari wa wanawake.....2	Muuguzi msaidizi..... 7
Mganga Mkuu.....3	mtaalamu wa lishe..... 8
Daktari 4	Mwalimu wa afya/ Mfanyakazi wa Jamii/ Mshauri..... 9
Muuguzi.....5	Wakala wa afya ya jamii 10

ORODHA YA KUANGALIA							
ZINGATIA MATENDO YA MTOA HUDUMA NA MWINGILIANO WAKE NA MTEJA (AU MTUNZI WA MTEJA WAKATI MTEJA AKIWA MTOTO). KWA KILA HATUA YA KUTAZAMA, DUARA: • 2 IKIWA “NDIYO”, ULIISHIKA NA ILIFANYIKA VIZURI NA KABISA; • 1 IKIWA “NDIYO”, ULITAZAMA NA ILIFANYIKA VIBAYA, VIBAYA, AU KWA SEHEMU TU; • 0 IKIWA “HAPANA”, MTOA HIFADHI HAKUTEKELEZA HATUA; • 8 KWA "SIJUI" IKIWA HUJAWEZA KUTAZAMA TENDO ZIMA; AU • 9 IKIWA “HAITUMIKI (NA)”. KUMBUKA KWAMBA JIBU HILI LA LAZIMA LINAPASWA KUTUMIKA TU PALE PALE KANUNI IMETOLEWA NA KIINI HAIJATIWA KIVULI.							
NO.	**KITENDO**	**NDIYO, UMEFANYA VIZURI (2)**	**NDIYO, IMEFANYIKA VIBAYA, ISIYO SAHIHI, AU KWA KIASI (1)**	**HAIJAFANYIKA (0)**	**DK (8)**	**NA (9)**	**MAONI**
TATHMINI							
01	REKODI JINSIA YA MTEJA HAPA.	KIUME.....1 KIKE.....2					
USTAWI WA JUMLA							
02	Je, mfanyakazi wa afya alimuuliza mteja (au mlezi wa mteja) madhumuni yake ya ziara hiyo?	2	1	0	8		
03	REKODI KUSUDI HAPA. IKIHITAJI, KAGUA CHATI YA MTEJA AU MAELEZO YA MTOAJI BAADA YA MASHAURIANO.	_____ _____					
04	Je, mfanyakazi wa afya alithibitisha umri wa mteja au kukagua umri uliorekodiwa mahali pengine kwenye kituo?	2	1	0	8		
05	REKODI TAREHE YA KUZALIWA KWA MTEJA HAPA. HII HUENDA IKAHITAJI KUANGALIA CHATI YA MTEJA AU	SIKU ..... MWEZI ..... MWAKA ☐☐☐☐					

	MAELEZO YA MTOAJI BAADA YA MASHAURIANO.	.....□□□□ ..... HAMNA 999					
06	REKODI UMRI WA MTEJA HAPA. IKIHITAJI, KAGUA CHATI YA MTEJA AU MAELEZO YA MTOAJI BAADA YA MASHAURIANO. ZUNGUA MSIMBO IKIONYESHA IKIWA UMRI UMEREKODIWA KATIKA MIEZI AU MIAKA, KISHA REKODI UMRI KATIKA NAFASI ULIYOPEWA. DUARA '999' KAMA UMRI HAUPO.	C. MIAKA KWA MWEZI.....1 D. MIAKA KWA MWAKA .....2 HAMNA 999					
07	Je, mfanyakazi wa afya alimpima mteja au kukagua uzito uliopimwa mahali pengine katika kituo?	2	1	0	8		
08	REKODI UZITO NA KITENGO CHA KIPIMO CHA MTEJA HAPA (K.M., MITA, VICENTA). HII HUENDA IKAHITAJI KUMTAZAMA MTEJA CHATI AU MAELEZO YA MTOAJI BAADA YA MASHAURI.	UZITO.....□□□. ..... KITENGO CHA KIPIMO ..... _____ HAMNA 999					
09	Je, mfanyakazi wa afya alipima urefu au urefu wa mteja au alikagua urefu/urefu uliopimwa mahali pengine kwenye kituo?	2	1	0	8		
10	REKODI UREFU WA MTEJA NA KITENGO CHA KIPIMO HAPA (K.K., KILO, PAUNDI). IKIHITAJI, KAGUA CHATI YA MTEJA AU MAELEZO YA MTOAJI BAADA YA USHAURI.	UREFU .....□□□. ... KITENGO CHA KIPIMO ..... _____ HAMNA 999					

11	Je, mfanyakazi wa afya alipima MUAC ya mteja au kukagua MUAC iliyopimwa mahali pengine kituo?	2	1	0	8		
12	REKODI MUAC NA KITENGO CHA KIPIMO CHA MTEJA HAPA (K.K., CENTTIMETERES). IKIHITAJI, KAGUA CHATI YA MTEJA AU MAELEZO YA MTOAJI BAADA YA USHAURI.	MUAC..... ☐☐.☐ ..... KITENGO CHA KIPIMO ..... _____ HAMNA 999					
13	Je, mhudumu wa afya aliainisha hali ya lishe au kukagua uainishaji uliofanywa mahali pengine kituo?	2	1	0	8		
14	DUNGUA KANUNI KULINGANA NA Ainisho LA MTOAJI WA LISHE YA MTEJA, IKIHITAJI, KAGUA CHATI YA MTEJA AU MAELEZO YA MTOAJI BAADA YA MASHAURIANO.	UTAPIAMLO MKALI .....1 UPUNGUFU WA LISHE KWA WASTANI2 KAWAIDA.....3 UZITO KUPITA KIASI.....4 UNENE WA KUPITA KIASI.....5 MENGINEYO.....6 TAJA: _____ HAIJAANDIKIWA.....9					
15	Je, mhudumu wa afya alimchunguza mteja kwa upungufu wa damu (mitende iliyopauka au kope za ndani) au kukagua matokeo ya uchunguzi uliofanywa mahali pengine katika kituo?	2	1	0	8		

16	Je, mhudumu wa afya alitoa/aliwasilisha taarifa zozote kuhusu lishe (kulisha/kula)?	2	1	0	8		
17	Je, mhudumu wa afya alimpeleka mteja kwenye huduma za usaidizi wa lishe katika jamii?	2	1	0	8		
18	Je, mhudumu wa afya alimpeleka mteja kwa mfanyakazi wa afya wa jamii?	2	1	0	8		

SEHEMU B

Demografia ya mgonjwa.		
1.	Jinsia ya mgonjwa	a) Kike b) Kiume
2.	Je (JINA) ulizaliwa siku mwezi na mwaka gani?	Mwezi. . . . . . Sijui Mwezi. . . . . .98 Mwaka. . . . . . Sijui mwaka. 9998
3.	Unaishi wapi?	Mjini…….1 Kijijini……2
4.	Je! Umewahi kuenda shule?	Ndiyo. . . . . .1 Hapana. 2
5.	Je! Ni kiwango gani cha juu kabisa cha shule ulihudhuria: Msingi, sekondari, au juu?	Msingi . . . . 1 Sekondari . . . . . 2 Zaidi 3
6.	Je, umefanya kazi yoyote katika miezi 12 iliyopita ambapo ulipokea pesa taslimu au bidhaa kama malipo?	Ndiyo = 1 Hapana = 2 Sijui = 8 Amekataa= 9
7.	Je, umefanya kazi yoyote katika siku saba zilizopita ambapo ulipokea pesa taslimu au bidhaa kama malipo?	Ndiyo = 1 Hapana = 2 Sijui = 8 Amekataa= 9
8.	Je, hali yako ya ndoa ikoje?	Umeolewa……1 Hajawahi kufunga ndoa……2 Wanaishi pamoja. . . . . 3 Wameachana 4

		Mjane……5
9.	Ni mwezi na mwaka gani (JINA) ulimwona daktari, afisa wa kliniki au muuguzi kwa ajili ya matibabu ya VVU?	Mwezi. . . . . Sijui Mwezi. . . . . .98 Mwaka. . . . . . Sijui mwaka. 9998
10.	Je, (JINA) umewahi kupima CD4? Hesabu ya CD4 inakuambia jinsi unavyoumwa na VVU na kama unahitaji kutumia ARVs au dawa zingine za VVU?	Ndiyo = 1 Hapana = 2 Sijui = 8 Amekataa= 9
11.	Ni mwezi na mwaka gani (JINA) ulipimwa mara ya mwisho kwa hesabu yake ya CD4?	Mwezi. . . . . Sijui Mwezi. . . . . .98 Mwaka. . . . . . Sijui mwaka. . . . . .9998 Idadi …….

SEHEMU C.

Kiwango cha Kushikamana; kulingana na pendekezo la TFNC na Alama ya Kupima Fahirisi		
NO	SWALI	MAJIBU
1.	Je, mfanyakazi wa afya alifanya tathmini ya kimatibabu?	Ndiyo = 1 Hapana = 2 Sijui = 8
2.	Je, mhudumu wa afya alifanya tathmini ya kianthropometriki?	Ndiyo = 1 Hapana = 2 Sijui = 8
3.	Je, mhudumu wa afya alifanya tathmini ya kibayolojia?	Ndiyo = 1 Hapana = 2 Sijui = 8
4.	Je, mfanyakazi wa afya alifanya tathmini ya chakula?	Ndiyo = 1 Hapana = 2 Sijui = 8
5.	Je, mhudumu wa afya alikueleza kuhusu madhara ya dawa na usimamizi wa lishe?	Ndiyo = 1 Hapana = 2 Sijui = 8
6.	Je, mhudumu wa afya alikushauri kuhusu usalama wa chakula na maji na usafi?	Ndiyo = 1 Hapana = 2 Sijui = 8
7.	Je, mhudumu wa afya alitoa ushauri kuhusu lishe na VVU?	Ndiyo = 1 Hapana = 2 Sijui = 8
8.	Je, mhudumu wa afya alikupa virutubisho vyovyote vya madini?	Ndiyo = 1 Hapana = 2 Sijui = 8

9.	Je, mhudumu wa afya alikupangia ufuatiliaji wa huduma?	Ndiyo = 1 Hapana = 2 Sijui = 8

8.6 Kiambatisho VII: Kwa lengo no.2 kutoa huduma

Hojaji iliyopitishwa kutoka USAID & FANTA zana ya kutathmini haraka juu ya NACS.

HABARI ZA KITUO			
01	JINA LA KITUO	MSIMBO WA KITUO ……	
02	UJAZO WA WAGONJWA ……		
03	WILAYA____	MSIMBO WA WILAYA ……..	
04	AINA YA KITUO___	AINA YA MSIMBO WA KITUO ……	
HABARI ZA MAHOJIANO			
05	Tarehe……..…….Siku	Mwezi	Mwaka ☐☐☐☐
06	INTERVIEWER NAME____	INTERVIEWER CODE…….……	

VIFAA NA ZANA ZA TATHMINI YA HALI YA LISHE			
Sasa ningependa kukuuliza maswali kuhusu vifaa na zana zinazopatikana katika kituo chako cha kutoa huduma za lishe.			
01	Je, kipimo cha mizani cha watu wazima kinapatikana katika kituo chako? IKIWA NDIYO, ULIZA: Je, kimetolewa kwa kituo hiki au kinashirikiwa na kituo kingine?	NDIYO, IMEPEWA 1 NDIYO, IMESHIRIKIWA 2 NO 3 N/A 9	☐ 111_1 ☐ 111_1
02	Ni vingapi viko katika hali ya kufanya kazi? REKODI NAMBA KATIKA NAFASI ILIYOTOLEWA. JAZA SIFURI INAYOONGOZA INATAKIWA. REKODI ‘88’ KAMA HAIJULIKANI.	☐☐	
03	REKODI SIKU, MWEZI, NA MWAKA WA KALIBITI ILIYOPITA IKIWA HAIJULIKANI, REKODI ‘88’ AU ‘8888’ KATIKA MASANDUKU ILIYOTOLEWA.	SIKU..... MWEZI..... MWAKA..... ☐☐☐☐	

04	Je, stadiometer (kwa watu wazima) inapatikana katika kituo chako? IKIWA NDIYO, ULIZA: Je, kimetolewa kwa kituo hiki au kinashirikiwa na kituo kingine?	NDIYO, IMEPEWA 1 NDIYO, IMESHIRIKIWA 2 NO 3 N/A 9	□ 113_1 □ 113_1
05	Vingapi vinafaa kwenye mazingira ya kazi?? REKODI NAMBA KATIKA NAFASI ILIYOTOLEWA. JAZA SIFURI INAYOONGOZA INATAKIWA. REKODI '88' KAMA HAIJULIKANI.	□□	
06	Je, mkanda ya MUAC kwa watu wazima inapatikana katika kituo chako? IKIWA NDIYO, ULIZA: Je, kimetolewa kwa kituo hiki au kinashirikiwa na kituo kingine?	NDIYO, IMEPEWA 1 NDIYO, IMESHIRIKIWA 2 NO 3 N/A 8	□ 115_1 □ 115_1
07	Je, vingapi vinapatikana ? REKODI NAMBA KATIKA NAFASI ILIYOTOLEWA. JAZA SIFURI INAYOONGOZA INATAKIWA. REKODI '888' KAMA HAIJULIKANI.		

RASILIMALI WATU
Sasa nina nia ya kukuuliza maswali kuhusu rasilimali watu na usimamizi wa rasilimali watu.

01	Kwanza, ningependa kukuuliza kuhusu idadi ya kila aina/kada ya mhudumu wa afya katika kituo hiki. Ninavutiwa tu na wahudumu wa afya ambao wameajiriwa na kituo hiki cha afya. Hii haijumuishi watu wa kujitolea au wafanyikazi walioachiliwa. D. SOMA AINA YA MTOA MTOA (KADA), KISHA UULIZE: [AINA YA MTOA MTOA] wangapi wamepewa kitengo cha [KITENGO CHA JINA]? E. REKODI IDADI YA WATOA HUDUMA KATIKA NAFASI ILIYOTOLEWA. IKIWA MHOJIWA HAJUI, REKODI '99'. F. UULIZO UNAOFUATA: Je, [AINA YA MTOA MTOA] kwa kawaida hutoa huduma za lishe katika kituo hiki? ELEZA: Kwa huduma za lishe, ninamaanisha tathmini ya hali ya lishe, ushauri wa lishe, usaidizi wa lishe, na/au rufaa kwa huduma za usaidizi wa lishe. REKODI IDADI YA WATOA HUDUMA AMBAO KWA KAWAIDA HUTOA HUDUMA ZA LISHE KATIKA NAFASI INAYOTOLEWA. IKIWA MHOJIWA HAJUI, REKODI '99'. G. MWISHO, ULIZA: Je, [AINA YA MTOA MTOA] amefunzwa kutoa huduma za lishe katika kituo hiki? ELEZA: Kwa mafunzo, ninamaanisha kabla ya kazi au mafunzo ya ndani ya huduma. REKODI IDADI YA WATOA HUDUMA AMBAO WAMEFUNZWA KUTOA HUDUMA ZA LISHE KATIKA NAFASI ILIYOTOLEWA. IKIWA MHOJIWA HAJUI, REKODI '99'. Kumbuka: Rekebisha aina/kada na vitengo vya watoa huduma pamoja na aina ya mafunzo inavyofaa kwa muktadha wa nchi na malengo ya tathmini.

Aina/kada ya mtoa huduma		Ni wangapi (aina ya mtoaji) wamewekwa kwenye kitengo hiki?			B. Ni wangapi (aina ya mtoaji) wanaweza kutoa huduma ya lishe katika kitengo hiki?			C. Je una watoa huduma wangapi kwenye hiki kitengo?		
		[KITENGO]			[KITENGO]			[KITENGO]		
		(a) ANC	(c) WATOTO	(d) HIV/TB	(a) ANC	(c) WATOTO	(d) HIV/TB	(a) ANC	(c) WATOTO	(d) HIV/TB
125_1	DAKTARI WA WATOTO									
125_2	DAKTARI WA WANAWAKE.									
125_3	MGANGA MKUU									
125_4	DAKTARI									
125_5	MUUGUZI									
125_6	MKUNGA									
125_7	MUUGUZI MSAIDIZI									
125_8	MTAALAMU WA LISHE									
125_9	MWALIMU WA AFYA ,MFANYAKAZI									

MAONI KWA NINI KADA FULANI HAWATOI HUDUMA ZA LISHE

_____

_____

_____

_____

USHAURI / UKOCHA/MAFUNZO			
Sasa ningependa kukuuliza kuhusu ushauri/mafunzo/mafunzo yanayofanywa katika kituo hiki.			
01	Je, mhudumu wa afya amewahi kufundishwa/kufundishwa/kufunzwa kuhusu utoaji wa huduma za lishe katika kituo hiki?	Ndiyo 1 Hapana 2 Sijui 8	
	IF NDIYO, ULIZA: Je, anaweza kuelezea ushauri/mafunzo/mafunzo yaliyotolewa? KAMA HAPANA, ULIZA: Kwa nini sivyo?		

USIMAMIZI NA MAONI			
Kisha, ningependa kukuuliza kuhusu usimamizi wowote wa watoa huduma za afya unaofanywa katika kituo hiki.			
01	Je, watoa huduma za lishe katika kituo hiki huwahi kusimamiwa?	Ndiyo 1 Hapana 2 Sijui 8	 □130 □130
	IF NDIYO, ULIZA: Je, unaweza kuelezea ziara za usimamizi? KAMA HAPANA, ULIZA: Kwa nini sivyo?		

02	Ni mara ngapi katika mwaka uliopita kuwa na huduma ya lishe watoa huduma katika kituo hiki wamesimamiwa?	HAIJAWAHI KAMWE 0 MARA MOJA 1 2-3 MARA 2 4-5 MARA 3 ≥ 6 MARA 4 SIJUI 8	
03	Je, maoni (ya chanya au hasi) yanatolewa kwa watoa huduma za lishe kulingana na usimamizi?	NDIYO 1 HAPANA 2 SIJUI 8	

Kiambatisho VIII. Kwa Lengo la 3 na 4 Kwa ajili ya mfanyakazi wa afya.

MAHOJIANO NO: ……

MUDA WA KUANZA: ……

MTOA HUDUMA MAELEZO BINAFSI.

1. Umri wa Sasa ……
2. Jinsia……
3. Taaluma yako ni nini ……
4. Je, umefanya kazi katika kliniki ya CTC kwa miaka mingapi?.....

Viwezeshaji.

- Programu za mafunzo ya mara kwa mara:

Je, ni mara ngapi unapata programu za mafunzo ya mara kwa mara kuhusu Mwongozo wa Kitaifa wa Huduma ya Lishe na Usaidizi wa Watu Wanaoishi na VVU? Unadhani nini kinakosekana kwa umahiri wako? Je, programu hizi za mafunzo zimesaidia kwa kiasi gani katika kukusaidia kuzingatia miongozo? Peleleza Zaidi.

- Uongozi unaounga mkono:

Je, timu ya uongozi inakuza utamaduni wa kufuata miongozo? Ni baadhi ya njia gani maalum ambazo timu ya uongozi hukusaidia katika kutekeleza miongozo ? Peleleza Zaidi.

- Ujumuishaji wa utunzaji wa lishe:

Je, huduma ya lishe inaunganishwa vipi katika huduma zingine za afya katika kliniki yako? Je, muunganisho huu unakusaidiaje kutoa huduma ya kina zaidi kwa wagonjwa wako? Peleleza Zaidi.

- Mitandao ya usaidizi kutoka kwa rika:

Je, kuna mitandao ya usaidizi rika inayopatikana kwa watu wanaoishi na VVU katika eneo lako? Je, mitandao hii inawezaje kusaidiwa ili kusaidia uzingatiaji wa miongozo? Peleleza Zaidi.

- Mipango ya elimu kwa wagonjwa:

Je, ni mipango gani ya elimu kwa wagonjwa inayofanywa katika kliniki yako ili kuwasaidia watu wanaoishi na VVU kuelewa umuhimu wa lishe bora na jinsi ya kufuata miongozo? Je, mipango hii imekuwa na ufanisi kiasi gani? Peleleza Zaidi.

- Upatikanaji wa rasilimali:

Je, una uwezo wa kupata rasilimali (k.m., wafanyakazi, muda, fedha, vifaa, vifaa) unahitaji kutekeleza miongozo kwa ufanisi? Upungufu wowote wa rasilimali huathiri vipi uwezo wako wa kuzingatia miongozo? Peleleza Zaidi.

Changamoto

- Kupoteza wafanyakazi.

Je, unaweza kuelezea changamoto zozote ambazo umekumbana nazo na upotezaji wa wafanyikazi? Je, hii imekuwa na athari gani katika uwezo wako wa kuzingatia miongozo? Peleleza Zaidi.

- Ukosefu wa fedha za usaidizi wa lishe.

Je, unaweza kuelezea changamoto zozote ambazo umekumbana nazo za ukosefu wa ufadhili wa usaidizi wa lishe? Je, hii imekuwa na athari gani katika uwezo wako wa kuzingatia miongozo? Peleleza Zaidi.

- Vikwazo vya mazingira ya kazi

Je, unaweza kuelezea vikwazo vyovyote vya mazingira ya kazi ambavyo vimezuia uwezo wako wa kutekeleza miongozo kwa ufanisi? (k.m., mzigo mkubwa wa wagonjwa, vikwazo vya muda, miundombinu duni, uhaba wa vifaa, mzigo mkubwa wa kazi) Peleleza Zaidi.

- Utekelezaji wa sera usio thabiti:

Je, unaweza kuelezea changamoto zozote ambazo umekumbana nazo na utekelezaji wa sera usiolingana katika CTC zote? Je, hii imekuwa na athari gani katika uwezo wako wa kuzingatia miongozo? Peleleza Zaidi.

Maoni ya Mhojiwa.

- Ni yapi mapendekezo yako ya kuboresha utekelezaji wa Mwongozo wa Kitaifa wa Huduma ya Lishe na Usaidizi wa Watu Wanaoishi na VVU katika kliniki za CTC?
- • Nini matarajio yako kwa mustakabali wa huduma ya lishe kwa watu wenye VVU nchini Tanzania?
- • Je, kuna changamoto nyingine zozote ambazo zimezuia uwezo wako wa kuzingatia miongozo?

MWISHO WA MUDA: ……..

Appendix IX: Ethical clearance –MUHAS

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATION

Ref. No.DA.282/298/01.C/2156 Date: 09/04/2024

MUHAS-REC-04-2024-2156
Felistar William Mwakasungura
School of Public Health and Social Sciences
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: EVALUATION OF ADHERENCE TO THE NATIONAL NUTRITIONAL GUIDELINE FOR NUTRITION CARE AND SUPPORT OF PLHIV ATTENDING CTC CLINICS IN DAR ES SALAAM, TANZANIA.

Reference is made to the above heading,

I am pleased to inform you that the Chairman 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: 09/04/2024
EXPIRATION DATE OF APPROVAL: 09/04/2025

STUDY DESCRIPTION:
Purpose:

The purpose of this mixed approach study is to evaluate adherence to the National Guidelines for Nutrition Care and Support of People living with HIV attending in CTC clinics in Dar es Salaam and identifying factors influencing it.

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-%2015363.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/.

9th April 24

Dr. Kasusu Nyamuryekung'e.

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

Chairperson, MUHAS Research and Ethics Committee

Appendix X: Permision letter –Amana Regional Referral Hospital

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH

AMANA REGIONAL REFERRAL HOSPITAL

Telegram "HEALTH", DODOMA
Phone No.: +255 026 – 2323267
Email: ps@afya.go.tz

REF. NO. MoHCDGEC/ARRH/R.1/VOL II/42

P.O. Box 25411
DAR ES SALAAM
Phone: 022—2861903

Date: 18/04/2024

Director, Postgraduate Studies,
MUHAS,
P.O. B ox 65001,
DAR ES SALAAM.

Re: PERMISSION FOR DATA COLLECTION

Refer to your letter dated 4th March, 2024 which requested us to allow **Felistar William Mwakasungura** to conduct research and collect data in our institution.

We are here to acknowledge your request with the following conditions, that she must submit the results of her research after completion of analysis in order the hospital to make use of data's to solve hospital problems.

Regards.

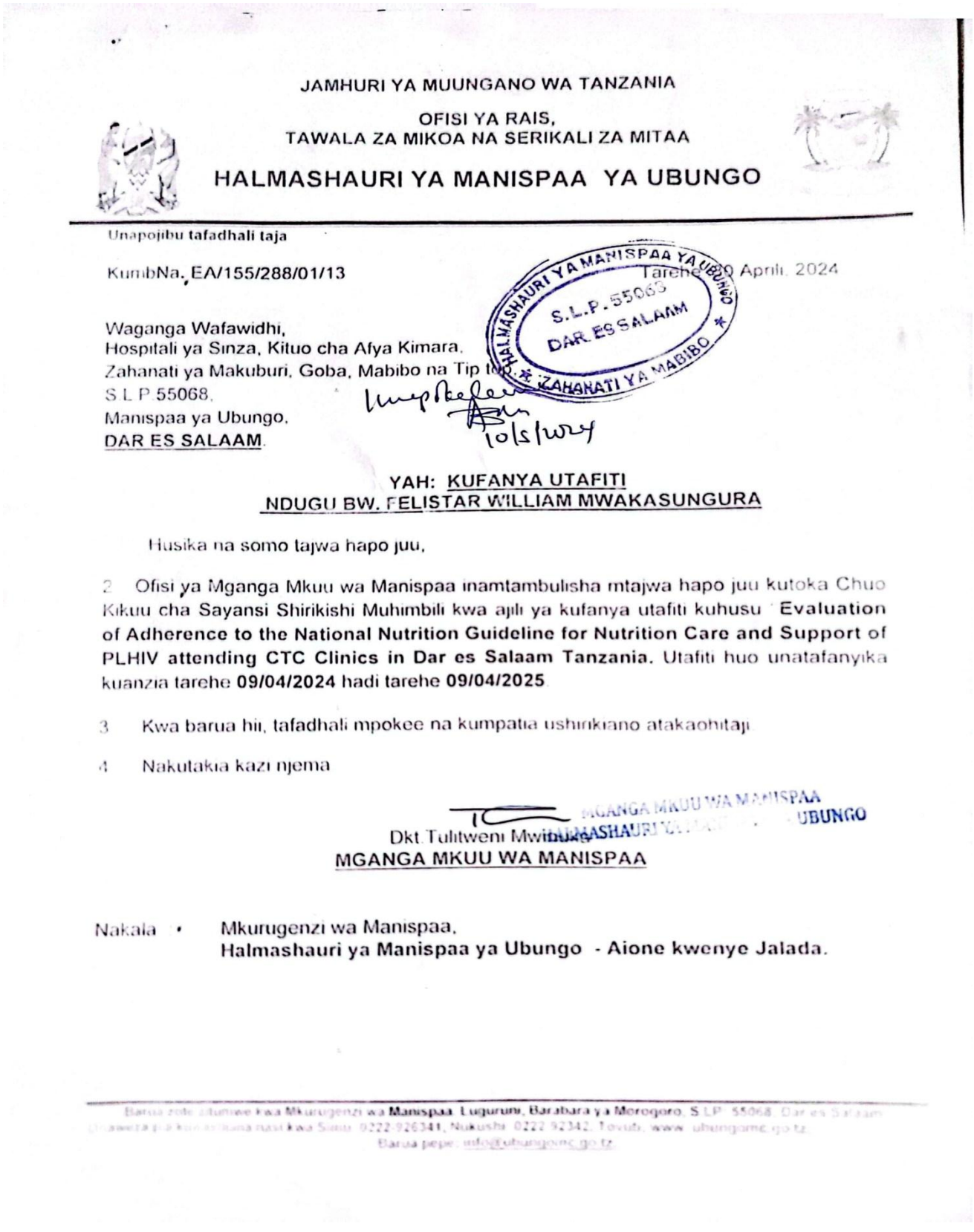
For:
MEDICAL OFFICER I/C
AMANA REGIONAL REFERAL HOSPITAL
P. O. Box 25411
DAR ES SALAAM

Dr. Rose Ntambuto
FOR: MEDICAL OFFICER INCHARGE
AMANA REGIONAL REFERRAL HOSPITAL

(All Correspondence should be directed to Medical Officer Incharge)
Email: amana@amanarrh.go.tz, Website: www.amanarrh.go.tz

1

Appendix XI: Permision letter –Sinza Health Centre



JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS,
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA MANISPAA YA UBUNGO

Unapojibu tafadhali taja

KumbNa. EA/155/288/01/13

Tarehe 10 Aprili, 2024

HALMASHAURI YA MANISPAA YA UBUNGO S.L.P. 55068 DAR ES SALAAM ZAHANATI YA MABIBO

Waganga Wafawidhi,
Hospitali ya Sinza, Kituo cha Afya Kimara,
Zahanati ya Makuburi, Goba, Mabibo na Tip
S.L.P.55068,
Manispaa ya Ubungo,
DAR ES SALAAM.

10/4/2024

YAH: KUFANYA UTAFITI
NDUGU BW. FELISTAR WILLIAM MWAKASUNGURA

Husika na somo tajwa hapo juu,

2 Ofisi ya Mganga Mkuu wa Manispaa inamtambulisha mtajwa hapo juu kutoka Chuo Kikuu cha Sayansi Shirikishi Muhimbili kwa ajili ya kufanya utafiti kuhusu **Evaluation of Adherence to the National Nutrition Guideline for Nutrition Care and Support of PLHIV attending CTC Clinics in Dar es Salaam Tanzania.** Utafiti huo unatafanyika kuanzia tarehe **09/04/2024** hadi tarehe **09/04/2025**.

3 Kwa barua hii, tafadhali mpokee na kumpatia ushirikiano atakaohitaji.

4 Nakutakia kazi njema.

MGANGA MKUU WA MANISPAA HALMASHAURI YA MANISPAA UBUNGO

Dkt. Tulitweni Mwinuka
MGANGA MKUU WA MANISPAA

Nakala : Mkurugenzi wa Manispaa,
Halmashauri ya Manispaa ya Ubungo - Aione kwenye Jalada.

Barua zote zituhusu Kwa Mkurugenzi wa Manispaa, Luguruni, Barabara ya Morogoro, S.L.P. 55068, Dar es Salaam
Unaweza pia kuwasiliana nasi Kwa Simu: 0222 926341, Nukushi: 0222 92342, Tovuti: www.ubungomc.go.tz
Barua pepe: info@ubungomc.go.tz

Appendix XII: Permision letter –Temeke Regional Referral Hospital

JAMHURI YA MUUNGANO WA TANZANIA
WIZARA YA AFYA.
HOSPITAL YA RUFAA YA MKOA YA TEMEKE
Baruapepe:temekerh@afya.go.tz,S.L.P 45232 Dar es Salaam,Simu 0222856007

Kumb. Na. TRRH/RSC/9/10/01/11 **Tarehe: 10/05/2024**

Ndg. Felister William Mwakasungura
Muhimbili University of Health and Allied Science
S.L.P 65001
DAR ES SALAAM.

YAH: OMBI LA KUFANYA UTAFITI "EVALUATION OF ADHERENCE TO THE NATIONAL NUTRITION GUIDELINE FOR NUTRITION CARE AND SUPPORT OF PLHIV ATTENDING CTC CLINICS IN DAR ES SALAAM, TANZANIA." (RESEARCH)

Tafadhali husika na somo tajwa hapo juu.

2. Nimepokea barua yako ya tarehe 08 Aprili, 2024 kuhusu ombi lako la kufanya Utafiti (Research) katika Taasisi yetu, kuhusu **"evaluation of adherence to the national nutrition guideline for nutrition care and support of PLHIV attending CTC clinics in Dar es salaam, Tanzania."**

3. Ombi lako limekubaliwa, utatakiwa kulipa ada kiasi cha **Tshs. 100,000/=**. Hivyo wasiliana na mhasibu wa mapato wa Hospitali **Ndg. Lusajo Nsajigwa** kwa namba **0717 959495** ili akupatie control Number kwa ajili ya malipo ya ada hii ili uweze kuruhusiwa kufanya utafiti.

4. Asante kwa ushirikiano.

Dkt. Husna Msangi
Kny: MKURUGENZI
HOSPITALI YA RUFAA YA MKOA YA TEMEKE

Nakala: CSCO/CTC - ***Tafadhali hakikisha taarifa ya utafiti inabaki hospitalini***

Appendix XIII: Permision letter –Magomen Health Centre

JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS,
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA MANISPAA YA KINONDONI

Unapojibu tafadhali taja:

Kumb. Na. HB.345/520/01

23 Aprili, 2024

Tegeta Mission Dispensary
04 JUL 2024
P.O. Box 5408
DAR ES SALAAM

Mganga Mfawidhi,
Kituo cha Afya Magomeni
Zahanati ya Mwenge,
Zahanati ya Kunduchi,
Tegeta Mission Imepokelewa 10/5/24

YAH: KIBALI CHA KUFANYA UTAFITI KATIKA VITUO VYA KUTOLEA HUDUMA ZA AFYA KATIKA MANISPAA YA KINONDONI

Tafadhari rejea somo tajwa hapo juu.

2. Ofisi ya Mganga Mkuu wa Manispaa ya Kinondoni inapenda kumtambulisha kwako mtafiti **Felistar William Mwakasungura** kutoka **Chuo Kikuu cha Muhimbili** kuwa amepewa kibali cha kufanya utafiti kuhusu **"Evaluation of Adhrence to the National Nutrition Guideline for Nutrition Care and Support of PLHIV Attending CTC Clinics in Dar es salaam."**

3. Utafiti huo utafanyika kuanzia tarehe **09 Aprili,2024** hadi **09 Aprili,2025.**

4. Kwa barua hii unaombwa kutoa ushirikiano ili kumuwezesha kukamilisha jukumu hilo kikamilifu na kwa wakati.

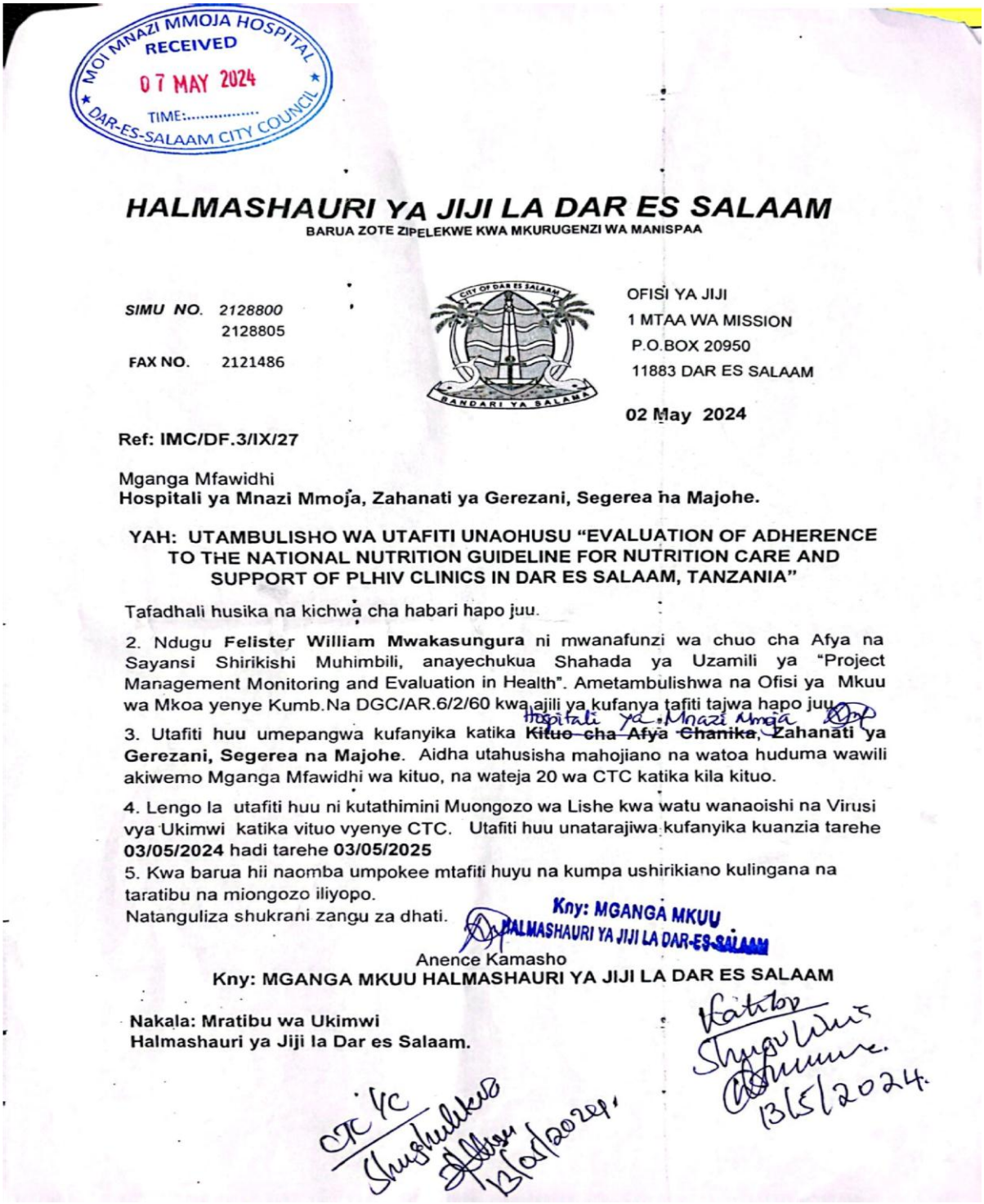
Nakutakia kazi njema.

Kny: MGANGA MKUU WA MANISPAA
Tawanya Selemani
Kny: MGANGA MKUU WA MANISPAA YA KINONDONI

Kny: MGANGA MKUU WA MANISPAA

Barua zote zitumwe kwa Mkurugenzi wa Manispaa Manispaa ya Kinondoni, S.L.P. 31902, 2 Barabara ya Morogoro, 14583 Dar es Salaam,
Unaweza pia kuwasiliana nasi kwa Simu: +255 2170173 Nukushi: 2172606, Barua pepe – info@kinondonimc.go.tz

Appendix XIV: Permision letter –Mnazi Mmoja Hospital



MOI MNAZI MMOJA HOSPITAL
RECEIVED
07 MAY 2024
TIME:.....
DAR-ES-SALAAM CITY COUNCIL

HALMASHAURI YA JIJI LA DAR ES SALAAM

BARUA ZOTE ZIPELEKWE KWA MKURUGENZI WA MANISPAA

SIMU NO. 2128800
2128805

FAX NO. 2121486

OFISI YA JIJI
1 MTAA WA MISSION
P.O.BOX 20950
11883 DAR ES SALAAM

02 May 2024

Ref: IMC/DF.3/IX/27

Mganga Mfawidhi
Hospitali ya Mnazi Mmoja, Zahanati ya Gerezani, Segerea ha Majohe.

YAH: UTAMBULISHO WA UTAFITI UNAOHUSU "EVALUATION OF ADHERENCE TO THE NATIONAL NUTRITION GUIDELINE FOR NUTRITION CARE AND SUPPORT OF PLHIV CLINICS IN DAR ES SALAAM, TANZANIA"

Tafadhali husika na kichwa cha habari hapo juu.

2. Ndugu **Felister William Mwakasungura** ni mwanafunzi wa chuo cha Afya na Sayansi Shirikishi Muhimbili, anayechukua Shahada ya Uzamili ya "Project Management Monitoring and Evaluation in Health". Ametambulishwa na Ofisi ya Mkuu wa Mkoa yenye Kumb.Na DGC/AR.6/2/60 kwa ajili ya kufanya tafiti tajwa hapo juu.

3. Utafiti huu umepangwa kufanyika katika **~~Kituo cha Afya Chanika~~, Zahanati ya Gerezani, Segerea na Majohe**. Aidha utahusisha mahojiano na watoa huduma wawili akiwemo Mganga Mfawidhi wa kituo, na wateja 20 wa CTC katika kila kituo.

4. Lengo la utafiti huu ni kutathimini Muongozo wa Lishe kwa watu wanaoishi na Virusi vya Ukimwi katika vituo vyenye CTC. Utafiti huu unatarajiwa kufanyika kuanzia tarehe **03/05/2024** hadi tarehe **03/05/2025**

5. Kwa barua hii naomba umpokee mtafiti huyu na kumpa ushirikiano kulingana na taratibu na miongozo iliyopo.

Natanguliza shukrani zangu za dhati.

Kny: MGANGA MKUU
HALMASHAURI YA JIJI LA DAR-ES-SALAAM

Anence Kamasho
Kny: MGANGA MKUU HALMASHAURI YA JIJI LA DAR ES SALAAM

Nakala: Mratibu wa Ukimwi
Halmashauri ya Jiji la Dar es Salaam.

13/5/2024.

13/05/2024

Appendix XV: Permision letter –TAMISEMI

JAMHURI YA MUUNGANO WA TANZANIA
Ofisi ya Rais
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MKOA WA DAR ES SALAAM
Anwani ya Simu:
Simu: 2203156/58
Fa: +25522203213
Tovuti: www.dsm.go.tz
Barua Pepe: ras@dsm.go.tz
Unapojibu Tafadhali taja:
Kumb. Na. EA.260/307/01B/361

OFISI YA MKUU WA MKOA
3 Barabara ya Rashidi Kawawa,
S. L. P. 5429,
12880 - DAR ES SALAAM.

17 Aprili, 2024

Mkurugenzi wa Halmashauri ya Jiji,
DAR ES SALAAM.

Wakurugenzi wa Manispaa,
Kinondoni, Kigamboni, Temeke na Ubungo,
DAR ES SALAAM.

Mganga Mfawidhi,
Hospitali ya Rufaa ya Mkoa
Amana,Temeke na Mwananyamala,
DAR ES SALAAM. `

YAH: UTAMBULISHO WA UTAFITI

Tafadhali husika na kichwa cha habari hapo juu.

2. Ofisi ya Mkuu wa Mkoa wa Dar es Salaam inautambulisha utafiti ujulikanao ***"Evaluation of Adherence to the National Nutrition Guideline for Nutrition Care and Support of PLHIV attending CTC clinics in Dar es Salaam, Tanzania"*** ikiwa ni sehemu ya kukamilisha mafunzo ya Shahada ya Uzamili ya Felistar William Mwakasungura ambaye ni Mwanafunzi katika Chuo Kikuu cha Sayansi na Afya Shirikishi Muhimbili.

3. Kibali cha kufanya utafiti huu kimetolewa na Chuo Kikuu cha Muhimbili (MUHAS-REC-04-2024-2156) ambacho kinaanzia tarehe 09/04/2024 hadi 09/04/2025.

4. Utafiti huu umepangwa kufanyika kwenye Hospitali tatu za Rufaa za Mkoa wa Dar es Salaam pamoja na Halmashauri zote 5 ndani ya Mkoa wa Dar es Salaam ambao utahusisha watu wenye maambukizi ya VVU walio kwenye vituo vya Tiba na Matunzo (CTC), watoa huduma na Waganga Wafawidhi.

5. Kwa barua hii, ninamtambulisha kwako **Felistar William Mwakasungura** ambaye ndio msimamizi Mkuu wa utafiti huo ili aweze kufanya utafiti huu muhimu. Nimeambatanisha orodha ya Vituo vitakavyohusika kwenye utafiti huu.

Nashukuru kwa Ushirikiano.

Dkt. Mohamedi Mang'una
Kny: KATIBU TAWALA MKOA
DAR ES SALAAM.

Nakala: Katibu Tawala Mkoa
DAR ES SALAAM – Aione kwenye jalada.

Appendix XVI: Permision letter –Kibada Health Centre

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA MANISPAA KIGAMBONI
[Barua zote zipelekwe kwa Mkurugenzi wa Manispaa Kigamboni]

Simu: +255 22-2928468
Fax: +255 22-2928469
Baruapepe: info@kigamboni.go.tz
Tovuti: www.kigamboni.go.tz

S.L.P. 36009,
KIGAMBONI,
DAR ES SALAAM,
TANZANIA.

Unapo jibu tafadhali taja:

Kumb. Na. AC.24/283/01C/111

06/05/2024

MGANGA MFAWIDHI,
KITUO CHA AFYA KIBADA

YAH: KIBALI KWA NDG. FELISTAR WILLIAM MWAKASUNGURA KUFANYA UTAFITI (RESEARCH) MANISPAA YA KIGAMBONI.

Tafadhali husika na kichwa cha habari hapo juu na rejea barua yako yenye Kumb. Na. EA.260/307/01B/361 ya tarehe 17 Aprili, 2024.

2. Mtajwa hapo juu ni mwanachuo kutoka chuo cha Sayansi na Afya Shirikishi Muhimbili ambaye amekubaliwa kufanya utafiti (Research) juu ya **"EVALUATION OF ADHERENCE TO THE NATIONAL NUTRITION GUIDELINE FOR NUTRIRTION CARE AND SUPPORT OF PLHIV ATTENDING CTV CLINICS IN DAR ES SALAAM, TANZANIA.** Katika Halmashauri ya Manispaa ya Kigamboni kuanzia 09/04/2024 hadi 09/04/2025.

3. Hivyo, Halmashauri haitawajibika na malipo ya aina yoyote kwa kipindi chote cha Utafiti kwa mhusika.

4. Ninashukuru kwa ushirikiano wako.

MGANGA MKUU WA MANISPAA
KIGAMBONI

Dkt. L. D. Ngamtwa
MGANGA MKUU WA MANISPAA YA KIGAMBONI

NAKALA: Mkurugenzi wa Manispaa ya Kigamboni – Aione kwenye jalada

Appendix XVII: Permision letter –Kigamboni Health Centre

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA MANISPAA KIGAMBONI
[Barua zote zipelekwe kwa Mkurugenzi wa Manispaa Kigamboni]

Simu: +255 22-2928468
Fax: +255 22-2928469
Baruapepe: info@kigamboni.go.tz
Tovuti: www.kigamboni.go.tz

S.L.P. 36009,
KIGAMBONI,
DAR ES SALAAM.
TANZANIA.

Unapo jibu tafadhali taja:

Kumb. Na. AC.24/283/01C/112

06/05/2024

MGANGA MFAWIDHI,
KITUO CHA AFYA KIGAMBONI .

YAH: **KIBALI KWA NDG. FELISTAR WILLIAM MWAKASUNGURA KUFANYA UTAFITI (RESEARCH) MANISPAA YA KIGAMBONI.**

Tafadhali husika na kichwa cha habari hapo juu na rejea barua yako yenye Kumb. Na. EA.260/307/01B/361 ya tarehe 17 Aprili, 2024.

2. Mtajwa hapo juu ni mwanachuo kutoka chuo cha Sayansi na Afya Shirikishi Muhimbili ambaye amekubaliwa kufanya utafiti (Research) juu ya **"EVALUATION OF ADHERENCE TO THE NATIONAL NUTRITION GUIDELINE FOR NUTRIRTION CARE AND SUPPORT OF PLHIV ATTENDING CTV CLINICS IN DAR ES SALAAM, TANZANIA.** Katika Halmashauri ya Manispaa ya Kigamboni kuanzia 09/04/2024 hadi 09/04/2025.

3. Hivyo, Halmashauri haitawajibika na malipo ya aina yoyote kwa kipindi chote cha Utafiti kwa mhusika.

4. Ninashukuru kwa ushirikiano wako.

MGANGA MKUU WA MANISPAA
KIGAMBONI

Dkt. L. D. Ngamtwa
MGANGA MKUU WA MANISPAA YA KIGAMBONI

NAKALA: Mkurugenzi wa Manispaa ya Kigamboni – Aione kwenye jalada

Appendix XVIII: Permision letter –Vijibweni Hospital

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA MANISPAA KIGAMBONI
[Barua zote zipelekwe kwa Mkurugenzi wa Manispaa Kigamboni]

Simu: +255 22-2928468
Fax: +255 22-2928469
Baruapepe: info@kigamboni.go.tz
Tovuti: www.kigamboni.go.tz

S.L.P. 36009,
KIGAMBONI,
DAR ES SALAAM,
TANZANIA.

Unapo jibu tafadhali taja:

Kumb. Na. AC.24/283/01C/113

06/05/2024

MGANGA MFAWIDHI,
HOSPITALI YA VIJIBWENI

YAH: KIBALI KWA NDG. FELISTAR WILLIAM MWAKASUNGURA KUFANYA UTAFITI (RESEARCH) MANISPAA YA KIGAMBONI.

Tafadhali husika na kichwa cha habari hapo juu na rejea barua yako yenye Kumb. Na. EA.260/307/01B/361 ya tarehe 17 Aprili, 2024.

2. Mtajwa hapo juu ni mwanachuo kutoka chuo cha Sayansi na Afya Shirikishi Muhimbili ambaye amekubaliwa kufanya utafiti (Research) juu ya **"EVALUATION OF ADHERENCE TO THE NATIONAL NUTRITION GUIDELINE FOR NUTRIRTION CARE AND SUPPORT OF PLHIV ATTENDING CTV CLINICS IN DAR ES SALAAM, TANZANIA.** Katika Halmashauri ya Manispaa ya Kigamboni kuanzia 09/04/2024 hadi 09/04/2025.

3. Hivyo, Halmashauri haitawajibika na malipo ya aina yoyote kwa kipindi chote cha Utafiti kwa mhusika.

4. Ninashukuru kwa ushirikiano wako.

MGANGA MKUU WA MANISPAA
KIGAMBONI

Dkt. L. D. Ngamtwa
MGANGA MKUU WA MANISPAA YA KIGAMBONI

NAKALA: Mkurugenzi wa Manispaa ya Kigamboni – Aione kwenye jalada

Appendix XIX: Permision letter –Gezaulole Dispensary

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA MANISPAA KIGAMBONI

[Barua zote zipelekwe kwa Mkurugenzi wa Manispaa Kigamboni]

Simu: +255 22-2928468
Fax: +255 22-2928469
Baruapepe: info@kigamboni.go.tz
Tovuti: www.kigamboni.go.tz

S.L.P. 36009,
KIGAMBONI,
DAR ES SALAAM,
TANZANIA.

Unapo jibu tafadhali taja:

Kumb. Na. AC.24/283/01C/111

06/05/2024

MGANGA MFAWIDHI,
ZAHANATI YA GEZAULOLE.

MGANGA MKUU
GEZAULOLE DISPENSARY
15/05/2024

YAH: KIBALI KWA NDG. FELISTAR WILLIAM MWAKASUNGURA KUFANYA UTAFITI (RESEARCH) MANISPAA YA KIGAMBONI.

Tafadhali husika na kichwa cha habari hapo juu na rejea barua yako yenye Kumb. Na. EA.260/307/01B/361 ya tarehe 17 Aprili, 2024.

2. Mtajwa hapo juu ni mwanachuo kutoka chuo cha Sayansi na Afya Shirikishi Muhimbili ambaye amekubaliwa kufanya utafiti (Research) juu ya "EVALUATION OF ADHERENCE TO THE NATIONAL NUTRITION GUIDELINE FOR NUTRIRTION CARE AND SUPPORT OF PLHIV ATTENDING CTV CLINICS IN DAR ES SALAAM, TANZANIA. Katika Halmashauri ya Manispaa ya Kigamboni kuanzia 09/04/2024 hadi 09/04/2025.

3. Hivyo, Halmashauri haitawajibika na malipo ya aina yoyote kwa kipindi chote cha Utafiti kwa mhusika.

4 Ninashukuru kwa ushirikiano wako.

MGANGA MKUU WA MANISPAA
KIGAMBONI

Dkt. L. D. Ngamtwa
MGANGA MKUU WA MANISPAA YA KIGAMBONI

NAKALA: Mkurugenzi wa Manispaa ya Kigamboni – Aione kwenye jalada

Appendix XX: Permision letter –Kimara Health Centre



JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS,
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA MANISPAA YA UBUNGO

Unapojibu tafadhali taja

Kumbu kumbu No. EA/155/288/01/13

Tarehe 30 April 2024

Waganga Wafawidhi,
Hospitali ya Serza, Kituo cha Afya Kimara
Zahanati ya Makuburi, Goba, Mahaba na Tip top.
S.L.P 55068
Manispaa ya Ubungo,
DAR ES SALAAM

YAH: KUFANYA UTAFITI
NDUGU RW. FELISTAR WILLIAM MWAKASUNGURA

Husika na somo lajwa napo juu.

2. Ofisi ya Mganga Mkuu wa Manispaa inatambua mtajwa hapo juu kutoka Chuo Kikuu cha Sayansi Shirikishi Muhimbili kwa ajili ya kufanya utafiti kuhusu "Evaluation of Adherence to the National Nutrition Guideline for Nutrition Care and Support of PLHIV attending CTC Clinics in Dar es Salaam Tanzania. Utafiti huo unatarajiwa kufanyika tarehe 09/04/2024 hadi tarehe 09/04/2025

3. Kwa barua hii, tafadhali mpokee na kumpatia ushirikiano atakaohitaji

4. Nakutakia kazi njema

Dkt Tulitweni Mwaisaka
MGANGA MKUU WA MANISPAA

Nakala • Mkurugenzi wa Manispaa,
Halmashauri ya Manispaa ya Ubungo - Aione kwenye Jalada

KITUO CHA AFYA KIMARA
15 MAY 2024
RECEIVED

Appendix XXI: Permision letter –Makuburi Dispensary



JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS,
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA MANISPAA YA UBUNGO

Unapojibu tafadhali taja

Kumbu.No. EA/155/288/01/13 Tarehe 30 April, 2024

Waganga Wafawidhi,
Hospitali ya Sinza, Kituo cha Afya Kimara
Zahanati ya Makuburi, Goba, Mabibo na Tip top
S.L.P 55068
Manispaa ya Ubungo,
DAR ES SALAAM

YAH: KUFANYA UTAFITI
NDUGU BW. FELISTAR WILLIAM MWAKASUNGURA

Husika na somo lapaa napo juu,

2 Ofisi ya Mganga Mkuu wa Manispaa inamtambulisha mtajwa hapo juu kufanya Chuo Kikuu cha Sayansi Shirikishi Muhimbili kwa ajili ya kufanya utafiti kuhusu Evaluation of Adherence to the National Nutrition Guideline for Nutrition Care and Support of PLHIV attending CTC Clinics in Dar es Salaam Tanzania. Utafiti huo unatatanyika kuanzia tarehe 05/04/2024 hadi tarehe 05/04/2025.

3 Kwa barua hii, tafadhali mpokee na kumpatia ushirikiano atakaohitaji.

4 Nakutakia kazi njema.

MGANGA MKUU WA MANISPAA
Dkt Tulitweni Mwalongo
MGANGA MKUU WA MANISPAA

Nakala : Mkurugenzi wa Manispaa,
Halmashauri ya Manispaa ya Ubungo - Aione kwa hatua

KITUO CHA AFYA MAKUBURI
16 MAY 2024
DAR ES SALAAM
HALMASHAURI YA MANISPAA YA UBUNGO

Appendix XXII: Permision letter –Mwananyamala Hospital

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH

Telephone Address:

Telephone: 022-2760500

Mwananyamala Regional
Referral Hospital
P O Box 61665
Dar es Salaam

RE: NO.: MA. 239/240/01/73

DATE: 19TH April,2024

Director,
Muhimbili University of Health and,
Allied Sciences,
P O BOX 65001,
DAR ES SALAAM.

RE: FELISTAR WILLIAM MWAKASUNGURA - TO CONDUCTI HIS RESEARCH IN MWANANYAMALA REGIONAL REFERRAL HOSPITAL

The captioned subject refers

2. May you be informed that your request to research Titled "***Evaluation of Adherence to the National Nutritional Guideline for Nutrition care and Support of PLHIV attending CTC Clinic in Dar es Salaam Tanzania***" **Start to 22th April,2024**, to **24th April,2024** is asserted.

3. The institution charges **50,000/=**, as Research fee as per student spent. The payments are to be made upon reporting.

4. May she report to the Administration and HR department head for further instruction.

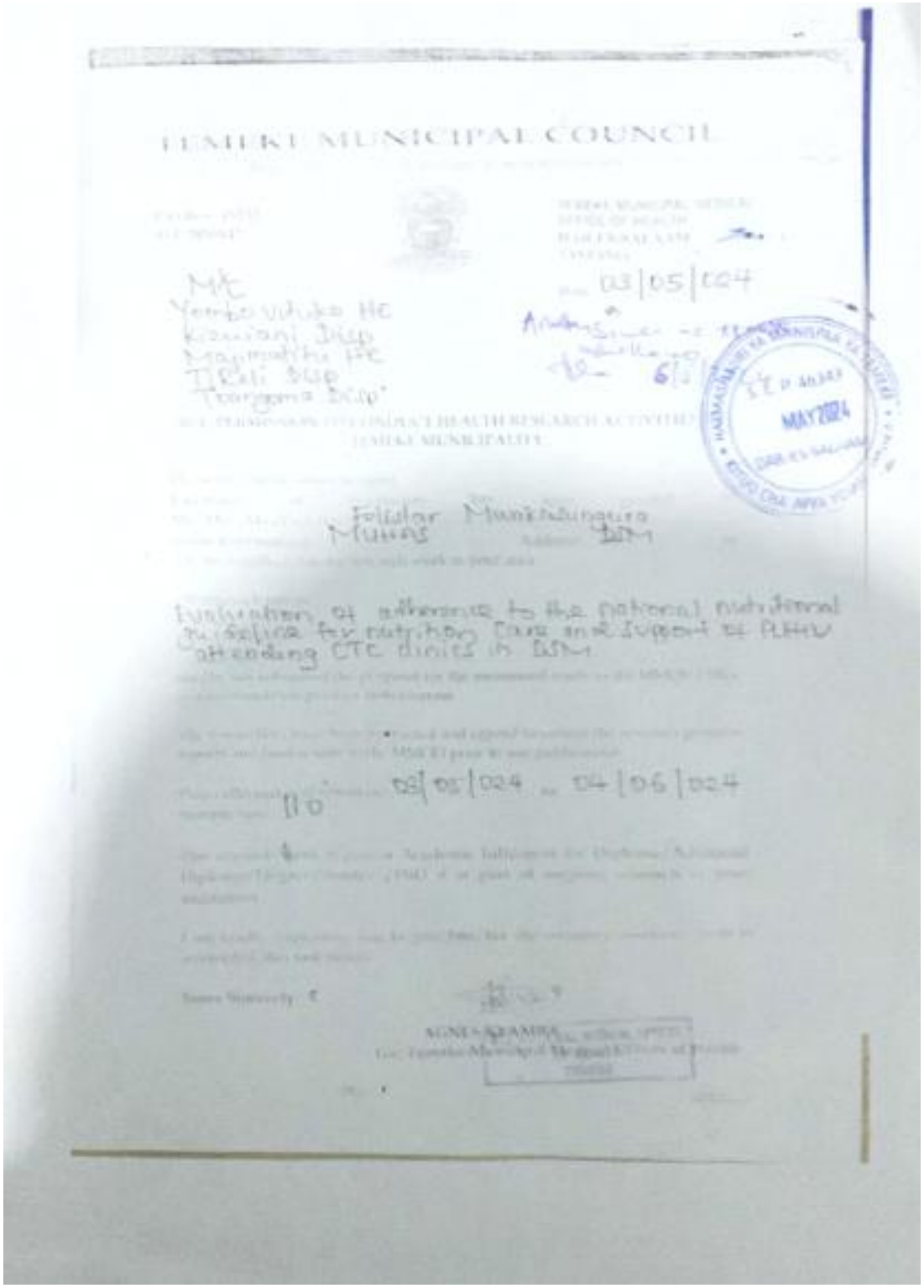
Thanks.

Dr. Nkwabi Akida
RESEARCH COORDINATOR
FOR: MEDICAL OFFICER INCHARGE
MWANANYAMALA REGIONAL REFERRAL HOSPITAL

COPY:
Heads of Internal Medicine Department - **MWANANYAMALA REGIONAL REFERRAL HOSPITA**

Felistar William Mwakasungura - **Report to the head of Internal Medicine Department**

Appendix XXIII: Permision letter –Yombo Vituka Dispensary



Appendix XXIV: Permision letter –Kizuiani Dispensary



Appendix XXV: Permision letter –Tegeta Dispensary



JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS,
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA MANISPAA YA KINONDONI

Unapojibu tafadhali taja:

Kumb. Na. HB.345/520/01

23 Aprili, 2024

Mganga Mfawidhi,
Kituo cha Afya Magomeni
Zahanati ya Mwenge,
Zahanati ya Kunduchi,
Tegeta Mission

Tegeta Mission Dispensary
04 JUL 2024

Imepokelewa 10/7/24

YAH: KIBALI CHA KUFANYA UTAFITI KATIKA VITUO VYA KUTOLEA HUDUMA ZA AFYA KATIKA MANISPAA YA KINONDONI

Tafadhari rejea somo tajwa hapo juu.

2. Ofisi ya Mganga Mkuu wa Manispaa ya Kinondoni inapenda kumtambulisha kwako mtafiti **Felistar William Mwakasungura** kutoka **Chuo Kikuu cha Muhimbili** kuwa amepewa kibali cha kufanya utafiti kuhusu **"Evaluation of Adhrence to the National Nutrition Guideline for Nutrition Care and Support of PLHIV Attending CTC Clinics in Dar es salaam."**

3. Utafiti huo utafanyika kuanzia tarehe **09 Aprili,2024** hadi **09 Aprili,2025.**

4. Kwa barua hii unaombwa kutoa ushirikiano ili kumuwezesha kukamilisha jukumu hilo kikamilifu na kwa wakati.

Nakutakia kazi njema.

DR. PATRICIA MKUU WA MANISPAA
Tawanya Mkurugenzi wa Manispaa ya Kinondoni

Kny: MGANGA MKUU WA MANISPAA

Barua zote zituma kwa Mkurugenzi wa Manispaa Manispaa ya Kinondoni, S.L.P. 31910, 2 Barabara ya Morogoro, 14483 Dar es Salaam,
Unaweza pia kuwasiliana nasi kwa Simu: +255 2170177 Nukushi: 2172649, Barua pepe – info@kinondoni.go.tz

Appendix XXVI: Permision letter –Tambukareli Dispensary



TEMEKE MUNICIPAL COUNCIL

M/C
Yombo Vituko HC
Kizuiani Disp
Majimatitu HC
Tambukareli Disp
Toangoma Disp

Angalia by Dr Sabit

03/05/024

S. L. P 45230
TEMEKE

TO WHOM IT MAY CONCERN

Felistar Munkulungura
Muhas DSM

Evaluation of adherence to the national nutritional guideline for nutrition care and support of PLHIV attending CTC clinics in DSM

110 03/05/024 to 04/06/024

Yours Sincerely

AGNES KIAMBA
for Temeke Municipal Medical Officer of Health

Appendix XXVII: Permision letter –Segerea Dispensary

JAMHURI YA MUUNGANO TANZANIA

OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHA YA JIJI LA DAR ES SALAAM

Kumb Na.DGC/AR.6/2/60 Tarehe 19/04/2024

Felistar William Mwakasungura
DAR ES SALAAM

YAH: KIBALI CHA UTAFITI

Tafadhali rejea kichwa cha habari hapo juu.

2. Ofisi ya Mkurugenzi imepokea barua Kumb Na. EA.260/307/01B/361 ya tarehe 17/04/2024 toka kwa Katibu Tawala Mkoa wa Dar es Salaam kuhusu kibali cha kufanya utafiti.

3. Kwa barua hii kibali kimetolewa na Mwajiri kwa ajili ya kufanya utafiti unaohusu "evaluation of Adherence to the National Nutrition Guideline for Nutrition care and Support of PLHIV clinics in Dar es Salaam, Tanzania" katika Halmashauri ya Jiji la Dar es Salaam katika vituo vya afya vifuatavyo Mnzasi mmoja na Gerezani pamoja na Zahanati ya Segerea na Majohe kuanzia 09 April, 2024 hadi 09 april, 2025.

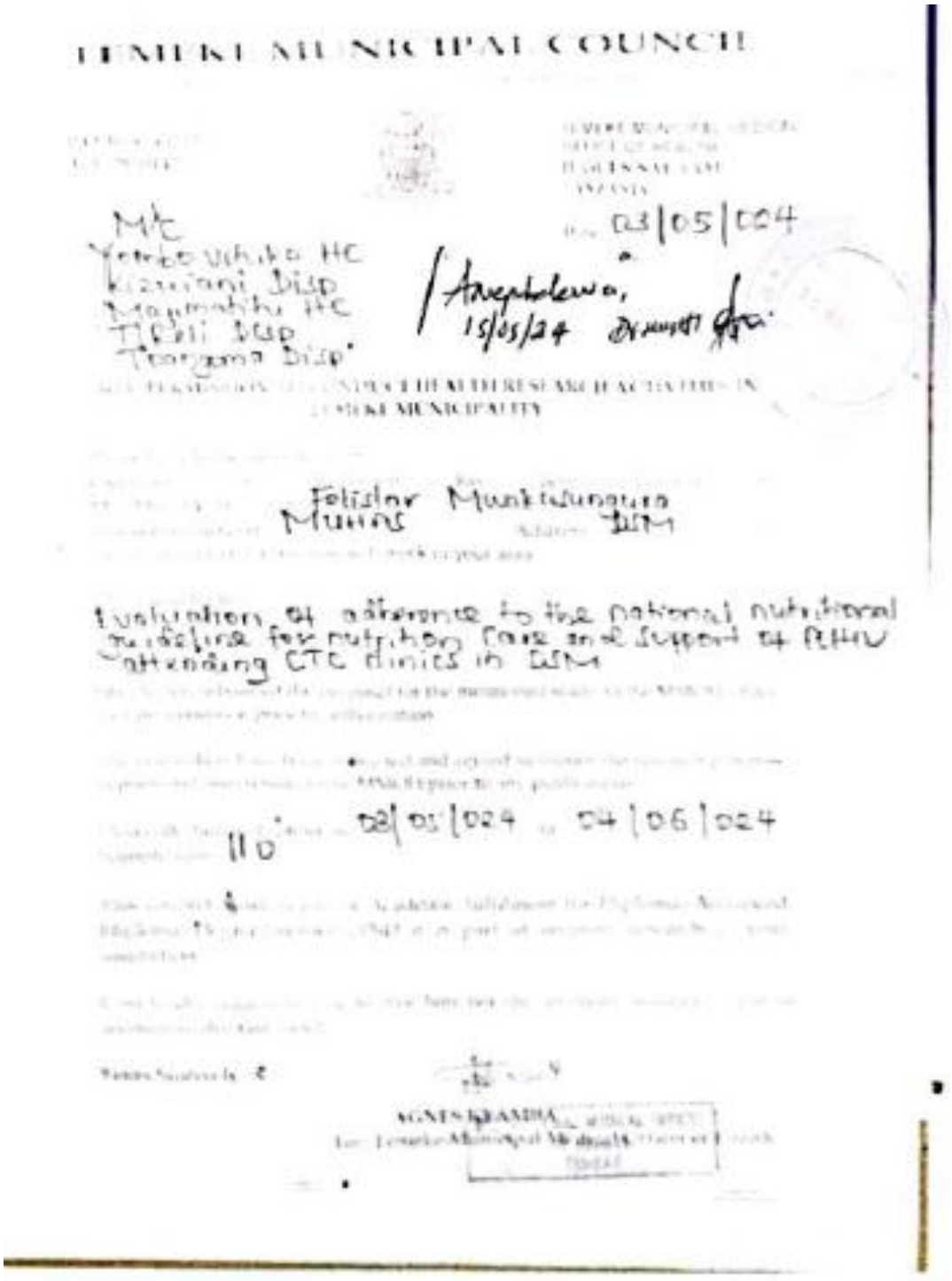
4. Nakutakia kazi njema.

A. Manyanya
Kny: MKURUGENZI WA JIJI
HALMASHAURI YA JIJI LA DAR ES SALAAM

Nakala: Mkurugenzi wa Jiji - Aione kwenye Jalada

OFISI YA MKURUGENZI, 1 MTAA WA MISSION, S.L.P 20950, 11553 DAR ES SALAAM, SIMU NA 2129800, 2128808, Tovuti: www.dcc.go.tz, Barua Pepe: info@dsmc.go.tz

Appendix XXVIII: Permision letter –Majimatitu Dispensary



TEMEKE MUNICIPAL COUNCIL

03/05/024

Mtk
Yombo Vituka HC
Kiziwani Disp
Majimatitu HC
Tabata Disp
Temeke Disp

Mwenyekiti
15/05/24

SPECIFIC THEATRE RESEARCH ACTIVITIES IN
MUNICIPALITY

Felister Munkelungwa
MUHAS

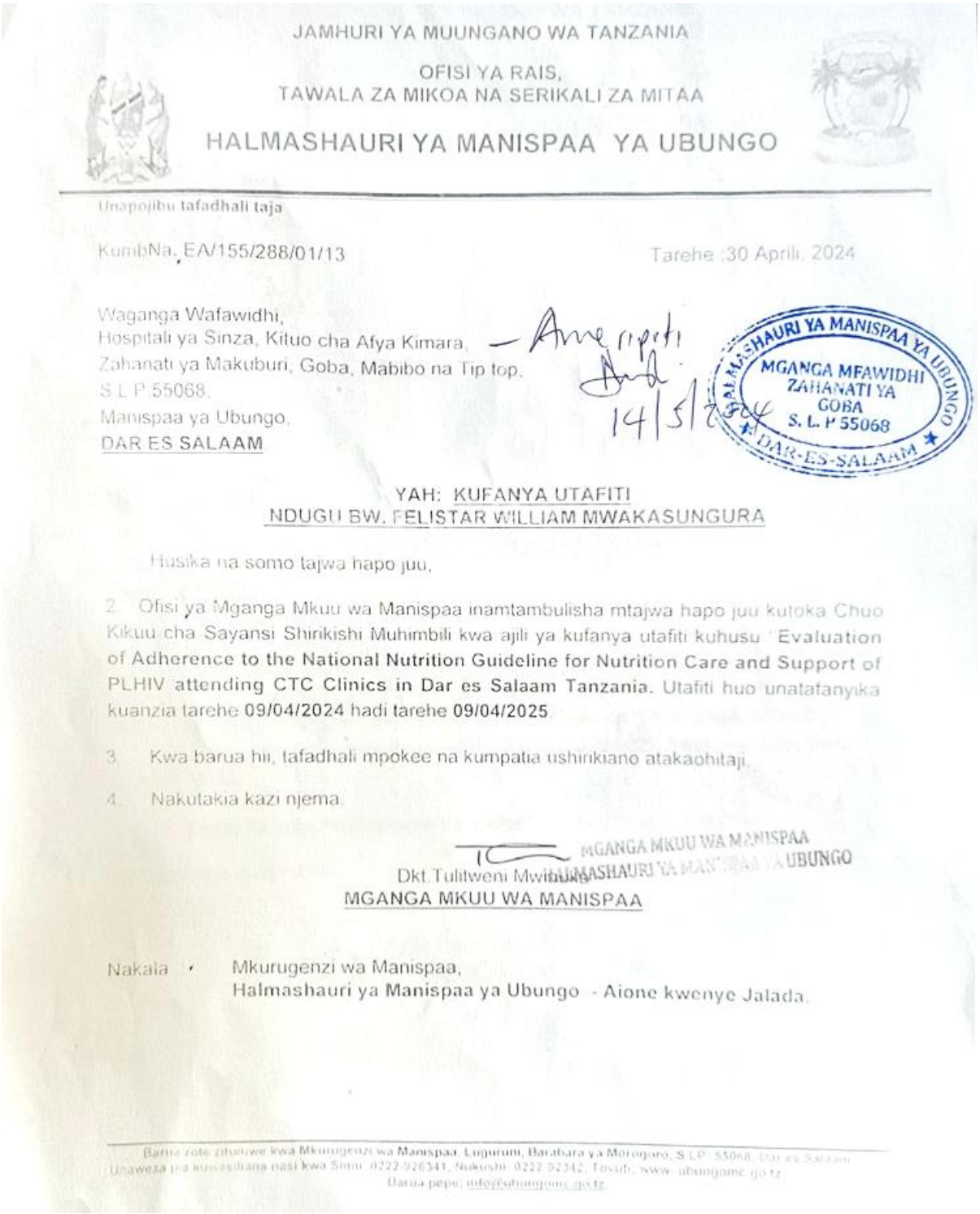
Evaluation of adherence to the national nutritional guideline for nutrition care and support of PLHIV attending CTC clinics in DSM

110

02/05/024 04/06/024

AGNES KIHAMBA

Appendix XXIX: Permision letter –Goba Dispensary



JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS,
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA MANISPAA YA UBUNGO

Unapojibu tafadhali taja

KumbNa. EA/155/288/01/13 Tarehe :30 Aprili, 2024

Waganga Wafawidhi,
Hospitali ya Sinza, Kituo cha Afya Kimara,
Zahanati ya Makuburi, Goba, Mabibo na Tip top,
S.L.P.55068,
Manispaa ya Ubungo,
DAR ES SALAAM

Ameripoti
14/5/2024

HALMASHAURI YA MANISPAA YA UBUNGO
MGANGA MFAWIDHI
ZAHANATI YA
GOBA
S. L. P 55068
DAR-ES-SALAAM

YAH: KUFANYA UTAFITI
NDUGU BW. FELISTAR WILLIAM MWAKASUNGURA

Husika na somo tajwa hapo juu,

2. Ofisi ya Mganga Mkuu wa Manispaa inamtambulisha mtajwa hapo juu kutoka Chuo Kikuu cha Sayansi Shirikishi Muhimbili kwa ajili ya kufanya utafiti kuhusu "Evaluation of Adherence to the National Nutrition Guideline for Nutrition Care and Support of PLHIV attending CTC Clinics in Dar es Salaam Tanzania. Utafiti huo unatafanyika kuanzia tarehe 09/04/2024 hadi tarehe 09/04/2025.

3. Kwa barua hii, tafadhali mpokee na kumpatia ushirikiano atakaohitaji.

4. Nakutakia kazi njema.

MGANGA MKUU WA MANISPAA
HALMASHAURI YA MANISPAA YA UBUNGO

Dkt. Tulitweni Mwinuka
MGANGA MKUU WA MANISPAA

Nakala : Mkurugenzi wa Manispaa,
Halmashauri ya Manispaa ya Ubungo - Aione kwenye Jalada.

Barua zote zituniwe kwa Mkurugenzi wa Manispaa, Luguruni, Barabara ya Morogoro, S.L.P. 55068, Dar es Salaam
Ukaweza pia kuwasiliana nasi kwa Simu: 0222-926341, Nukushi: 0222-92342, Tovuti: www.ubungomc.go.tz
Barua pepe: info@ubungomc.go.tz