

**PERCEPTIONS OF PATIENTS AND CLINICIANS ON INTEGRATION OF HUMAN
IMMUNODEFICIENCY VIRUS AND NON- COMMUNICABLE DISEASES CARE IN
JARAMOGI OGINGA ODINGA TEACHING AND REFERRAL HOSPITAL, KISUMU-
KENYA**

**BY
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DECLARATION

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I declare that this thesis is my original work and has not been presented to any other university
for the award of any degree.

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DEDICATION

I dedicate this thesis to my dear Fiancée Beryl Thure Awuor, my Mother Rose Senya and Siblings Dona Grace and Margret Bako. Their prayers and continued encouragement is invaluable.

ABSTRACT

The rising prevalence of non-communicable diseases (NCDs) among patients with HIV has led to the need to re-think of how best to manage the patient with both conditions in the HIV clinic. Despite the evidence suggesting system-wide and nation-wide benefits to integration, the patient and service level effects are undocumented. This study aimed to investigate patients and clinicians' perception of challenges of NCDs-HIV care service integration. A descriptive cross-sectional study was carried out in the Jaramogi Oginga Odinga Teaching and Referral Hospital HIV and MOPC clinics, involving 480 respondents from 2 groups; adult HIV patients and clinicians providing care for HIV patients and NCDs. The two groups of respondents were randomly and purposively sampled respectively. A structured questionnaire designed with a 4-point Likert scale was used for data collection. A score of 1 was awarded for strongly disagree, 2 for disagree, 3 for agree and 4 for strongly agree. All scores were added to give an aggregate score for each domain and overall. The study found that most respondents strongly agreed that combining HIV and NCDs Clinic would improve care, decrease frequency of clinic visits be cost effective as resources are shared for HIV and NCDs, and integration could capitalize on the good foundations built for HIV to improve NCDs Care. 49.8% of patients strongly agreed the integration of HIV and NCDs care services improve HIV and NCDs care in the HIV outpatient clinics. 87% of clinicians strongly agreed that the integration of HIV and NCDs care services improve care in the HIV outpatient clinics. Concerns on funding and lack of policies and strategies on integration were expressed as possible problems to the implementation of an integrated approach. The study also confirmed the clinicians' and patients' willingness to work and be seen in the integrated clinic respectively. 83.6% of the patients agreed they would visit HIV and NCDs integrated outpatient clinics for HIV and NCDs care. On the other hand, all clinicians agreed they would attend and work in integrated outpatient clinics to provide care for HIV and NCDs patients. Most respondents perceived that the integration of HIV and NCDs care services would lower frequency of visiting clinics, improve care for both HIV and NCDs in the HIV outpatient clinic, and enhance cost effectiveness of accessing quality health care. On the challenges, it was apparent that the integration of HIV and NCDs care services would lead to crowding and workload for patients and clinicians respectively. Regardless of the challenges, both patients and clinicians were overwhelmingly interested in being seen and working in integrated HIV and NCDs outpatient clinics respectively

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LIST OF ABBRIVITIONS AND ACRONYMS

ACBP	Automated Clinic Blood Pressure
ART	Antiretroviral Therapy
BP	Blood Pressure
CDs	Communicable Diseases
COPDS	Chronic Obstructive pulmonary Diseases
CVD	Cardiovascular Disease
DM	Diabetes mellitus
FHI360	Family Health International 360
HF	Heart Failure
HIV/AIDS	Human Immunodeficiency Virus /Acquired Immunodeficiency Syndrome
JOOTRH	Jaramogi Oginga Odinga Teaching and Referral Hospital
KEMRI	Kenya Medical Research Institute
LMICs	Low- and Middle-Income Countries
MDGs	Millennium Development Goals
MOH	Ministry of Health
MUERC	Maseno University Ethics Review Committee
NCDs	Non-Communicable Diseases
PLHIV	People living with HIV
SDG	Sustainable Development Goals
RD	Renal Disease
SGS	School of graduate studies
TB	Tuberculosis
WHO	World Health Organization.

OPERATIONAL DEFINITIONS

Perception: the process by which people translate sensory impressions into a coherent and unverified view of the world around them. Though necessarily based on incomplete and unverified (or unreliable) information, perception is equated with reality for most practical purposes and guides human behaviour in general (Flores, 2017)

Outpatient clinic: also known as outpatient department is the part of a hospital designed for the treatment of outpatient, people with health problems who visit the hospital for diagnosis or treatment but do not at this time require a bed or to be admitted for overnight care (Mifflin 2016).

Clinician: a health professional, such as a physician, clinical officer, psychologist, or nurse, who is directly involved in patient care, as distinguished from one who does only research of administrative work (Farlex, 2012). In this study the clinicians will include Nurses, clinical officers, medical officers and physicians working in the HIV outpatient clinic in Jaramogi Oginga Odinga teaching and referral hospital.

Integration: process of attaining close and seamless coordination between several departments, groups, organisations, systems, etc. (Brumell, 2014). In this study integration is defined more narrowly as “the integration of health services for the major causes of NCDs mortality (cardiovascular diseases, cancer, chronic respiratory diseases and diabetes) into existing HIV service delivery programs in the outpatient clinics.

Non-communicable diseases: Non-communicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. They are of long duration and generally slow progression. The four main types of non-communicable diseases are cardiovascular disease (like heart attacks and stroke), cancers, chronic respiratory diseases, such as chronic obstructed pulmonary diseases and diabetes (WHO, 2016).

Disease Centred Care: Defines patients by their disease, sorts them into rigid treatment pathways taking a one size fits all approach based on the lowest cost care. (Tinetti, Naik, and Dodson 2016)

Person Centred Care: “Providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions.”(Epstein and Street 2011)

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Despite the major strides made in the HIV response, an estimate 38.4 million people were living with HIV by the end of 2021. The HIV burden varies considerably with age, regions and countries. Approximately 0.7% of individuals aged 15-49 years were living with HIV globally by 2021(UNAIDS, 2022), while African region leads in HIV prevalence with 1 out of every 25 adults living with HIV, and estimated at 3.4% of the people living with HIV worldwide . In Kenya, 4.0% of population in the age brackets 15 and 49 years were living with HIV in 2021 (The World Bank, 2022).

While HIV continues to be a global health priority, non-communicable diseases (NCDs) such as diabetes Mellitus (DM), cardiovascular diseases (CVD) like hypertension, chronic obstructive pulmonary diseases (COPDS), renal diseases and cancers have become an emerging pandemic internationally with even higher rates in developing countries (Terzic and Waldman, 2011). The NCDs burden is estimated to cause thirty six million deaths per year (Ala Alwan and WHO, 2011). Eighty percent of these NCDs related deaths are happening in developing countries occurring mostly before age of sixty years (Haregu et al., 2014a).

NCDs prevalence is expected to increase significantly and may exceed communicable diseases as the most common cause of death worldwide by 2030 (Haregu et al., 2014a). As people living with HIV (PLWH) in low-income countries are living longer due to successful Anti-retroviral treatment (ART), NCDs become a leading cause of morbidity for this population (Haregu et al. 2014a) while data on co-morbidity rates are scarce, some studies have found a higher incidence of NCDs among PLWH than HIV-negative patients (Bloomfield et al., 2014).

The rising NCDs co-morbidity among PLWH presents a threat to progress achieved in management and reduction of global mortality due to HIV. In most low-income countries, NCDs are managed episodically placing patients at risk for long term complications and death (Vorkoper et al., 2018). In contrast HIV programs have demonstrated success in establishing longitudinal care models which focus on continuity and retention, routine monitoring and healthy lifestyle promotion, care attributes necessary to achieve successful outcome for both NCDs and HIV (Duffy et al., 2017).

Integration of NCDs and HIV services could capitalize on the foundation built with HIV treatment scale-up to improve the quality and efficiency of care and treatment for NCDs among PLWH. Integration may also increase retention in care for HIV/NCDs patients through reduced appointment frequency, reduce neglect of other health needs that often are ignored through vertical program implementation, and may be more cost-effective as resources are shared to comprehensively address the multiple needs of patients (Duffy et al., 2017).

Integrated health services that can draw lessons and leverage from existing modes of care would be the ultimate target to address the increasing burden of NCDs among PLWH rather than the current vertical platform of care (Tapela et al., 2019). HIV and NCDs both require continuity of coordinated care and information by specific health care providers. This would ensure that a patient with NCDs and HIV co-morbidity gets a comprehensive care that addresses all aspects of both conditions in single consultation. This would also provide patients with consistent drug supplies for a specified period of time reducing unnecessary clinic visits by patients merely to collect medication (Levitt et al., 2011). Additionally both HIV and NCDs require frequent laboratory investigations, behavioral changes and adherent support. The well-established

infrastructures and systems in place for HIV care could be adapted for prevention and management of some leading NCDs in the same clinic visit.

The integrated healthcare for people with NCDs and HIV would need considerable thought and planning on how it can be done. Integration may occur at various points of interaction between patient and health care system. A completely integrated service provided by the same health providers within the same facility to both NCDs and HIV patients as part of a combined clinic, would be at one end of the spectrum. Though, this may be probably feasible where patient numbers are modest (Levitt et al., 2011).

Although evidence suggest that there is national and system wide benefits of integration of care for patients with HIV and NCDs, patient and service level effects are not clear. Whereas the overall beneficiaries of integration are likely to be patients and providers, it is also possible that the resulting re-organization of health care delivery may disrupt service provision and potentially cause dissatisfaction among patients, particularly in the short term (Ahumuza et al., 2016). For successful integration, client's and providers views will influence uptake of integration strategies and their effectiveness on management of NCDs and HIV in the outpatient clinic. Client satisfaction can be an important tool to inform decision-making and management and highlight opportunities to reduce cost, and improve service utilization and quality of services.

Therefore, this study sought to investigate the perceptions of both patients with HIV and NCDs co -morbidity and clinicians on the integration of care of HIV and NCDs in the HIV clinic in Jaramogi Oginga Odinga Teaching and Referral hospital in Kisumu, western Kenya.

1.2 Statement of the Problem

The rising burden of NCDs among people living with HIV poses a big challenge of how best to deliver health services in still un-finished HIV epidemic. The current system of care of NCDs is largely disease - centered. Disease - centered care is where clinics are established based on diseases not the patient. This requires extra space to establish extra clinics based on the numbers of diseases. Such approaches require more staffs employed to run the clinics. As such this leads to multiple logistical challenges in already poorly funded and understaffed systems. Disease centered care require patients to visit multiple clinics to get care for various illness which means increased financial burden and loss of working hours for employed patients. Multiple clinics may also lead to poor compliance.

There is need to revert care from disease - centered approach to patient- centered approach to comprehensively take care of these patients with both HIV and NCDs co-morbidity. In addition to the benefits of integration stated above, some of the other potential benefits include: health service delivery platform that is more affordable and sustainable in low-income countries, time and cost savings for clients by establishing a one-stop shop for health services and reduced duplication and improved cost-efficiency of the health workforce, service infrastructure, management and financial resources, patients and clinician views are believed to determine successful uptake of integration strategies and their effectiveness on management of NCDs and HIV in the outpatient clinic.

1.3 Justification of the Study

Clearly improved health care delivery through patient-centered approach rather than disease-centered approach, the intermediate outcomes are more proximal indicators of its success or failure. Patient and providers' uptake of these integrated services can be considered as an

immediate outcome or a path through which successful integration is achieved. Therefore, one can also reason that patient and provider resistance to take up these integrated services positively can lead to failure in service delivery.

A distinctive approach to healthcare, known as integrated healthcare, emphasizes strong cooperation and communication between various healthcare experts and providers. Each healthcare provider and medical expert works together to benefit the patient's overall care rather than acting alone and separately. For better health outcomes, doctors, nurse practitioners, physician assistants, nurses, psychologists, and other healthcare professionals collaborate. This study therefore, sought to investigate the perceptions and attitudes of patients and clinicians on the integration of HIV and NCDs care in the outpatient clinic.

1.4 Objectives of the Study

1.4.1 Broad Objective

To explore the perceptions of healthcare providers (doctors, nurses, pharmacists and lab specialists), and patients with HIV and non-communicable disease on integration of HIV and NCDs care in the HIV out-patient clinic in JOOTRH, Kisumu-Kenya.

1.4.2 Specific Objectives

- i. To determine whether integration of HIV and NCDS would be beneficial to HIV and NCDS care in the HIV out-patient clinic.
- ii. To determine whether integration of HIV and NCDs would bring challenges to HIV and NCDs care in the HIV out-patient clinic.
- iii. To determine the willingness of healthcare providers to work in integrated clinic of HIV and NCDs in JOOTRH.

- iv. To determine the willingness of patients to attend integrated clinic of HIV and NCDs in JOOTRH.

1.5 Research Questions

In particular, this study sought to answer four research questions:

- i. Do healthcare providers and Patients perceive integration of HIV and NCDs beneficial to NCDs and HIV care?
- ii. Do healthcare providers and Patients perceive integration of HIV and NCDs as a challenge NCDs and HIV care?
- iii. Are Patients willing to attend this integrated Clinic for HIV and NCDs?
- iv. Are healthcare providers willing to work in this integrated Clinic for HIV and NCDs?

1.6 Significance of the Study

This study's findings show the potential for integration of NCDs and HIV care in the outpatient clinic by pointing out clearly the perceptions of patients and healthcare providers on the integral services at JOOTRH. For the healthcare facilities intending to integrate NCDs and HIV care services, the adoption of the recommendations from this study will be informative for healthcare providers and patients seeking the services as it points out possible benefits and barriers to integration of HIV and NCDs Care.

CHAPTER TWO

LITERATURE REVIEW

2.1 Global and local Burden of HIV and NCDs

World Health Organization estimates that as of 2021, 1.5 million individuals were newly infected with HIV worldwide. About 38.4 million people were living with HIV by the end of 2021 compared to 26.0 million affected persons by 2000 (WHO, 2022). The estimated HIV infections show a continued transmission of the disease despite the reduction in incidence, and access to antiretroviral, which has been useful in reducing the number of HIV-related deaths. Sub-Saharan African remain the mostly affected region accounting for two-thirds of the people living with HIV globally (WHO, 2022).

Last decade has encountered an unprecedented growth in HIV care coverage and global treatment of programs. Expanded criteria for implementation of a highly effective ART for HIV patients has been associated with more and favorable treatment outcomes (Achwoke et al., 2019). Also, for the same last decade non communicable diseases NCDs and death associated with NCDs has risen steadily. World Health Organization (WHO) has estimated 41 million NCDs-related deaths annually (Forouzanfar et al. 2016). Most of these deaths that are more than three quarters are in low and middle income countries. In general population major NCDs- cardiovascular diseases that contributes to largest mortality and morbidity rate includes (hypertension, heart attack and stroke), chronic respiratory diseases, cancer and diabetes mellitus (Forouzanfar et al., 2016).

Several studies (Achwoke et al., 2019; Alwan & WHO, 2011; Coetzee et al., 2019); Njuguna et al., 2018) investigating NCDs among PLHIV has been in Sub-Saharan Africa, which is the home to over half of the estimated PLHIV worldwide is faced with two diseases, epidemic communicable disease and NCDs. Several countries in SSA have continued to report rapid scale up of their ART programs (Achwoke et al., 2019). Concomitant rise in NCDs and NCD related

deaths has been observed over same period in Kenya [last decade] (Achwoka et al., 2019). NCDs, specifically the four largest cause for morbidity and mortality as mentioned accounts for over half of hospital admissions and deaths in Kenya (Achwoka et al., 2019). Increasing longevity of People living with HIV on ART implies that there is likely increases in prevalence of NCDs among PLHIV (Kansiime et al.,2019). Previous HIV treatment national outcome in Sub-Saharan Africa have not addressed NCDs among PLHIV. There is also paucity of data on impact of no communicable disease burden among PLHIV from early public health approach in HIV program that stratify clients CD4 counts declining care (Agan and Marconi, 2020). PLHIV with low CD4 counts under care was considered to be eligible for HIV treatment and had ART in their care as per prevailing national guidelines.

The impact and burden of NCDs among PLHIV in middle and low income country with robust ART programs has not been clearly defined in Kenya (Achwoka et al., 2019).

2.2 Integrating HIV and other Health Services

Continued transmission of HIV has influenced the integration of HIV care and other health care to effectively manage the sustainability of HIV response globally. Some of the HIV-other health care integrated services include non-HIV services integrated with antiretroviral therapy (ART), and HIV testing and counselling integrated with non-HIV services (Bulstra et al., 2021). integrated non-HIV services can be categorized under sexual and reproductive health care, tuberculosis testing and treatment, family planning, primary healthcare, and maternal and child healthcare. According to Bulstra et al. (2021) values for treating HIV In integrated services, cascade consequences tended to be more favorable, especially in the uptake of HIV testing and counselling services. The adoption of non-HIV services and the success of non-HIV-related

disease and condition treatments were frequently higher in integrated service (Bulstra et al., 2021).

Nugent et al. (2018) revealed reduced adoption of HIV testing, which was related to a lack of human resources and inadequate staff training, while examining the integration of HIV, hypertension, and diabetes screening in rural South Africa. In their studies of the integration of HIV testing and counseling with MCH services, Akinleye et al. (2017) and Lindegren et al. (2012) found lower rates of ART initiation and decreased prevention of mother-to-child transmission. The findings were attributed by Akinleye et al. (2017) and Lindegren et al. (2012) to a lack of connectivity to HIV services beyond testing and counseling. When women who started ART in prenatal care eventually had to move to ART in stand-alone HIV services, Washington et al. (2015) reported decreased retention and adherence in integrated antenatal care and HIV services. According to the findings, this was because of non-retention. According to Washington et al. (2015), there was no discernible difference in viral suppression between integrated and separate services, which the researcher blamed on a lack of HIV-related staff and poor adherence support in integrated programs.

2.3 Perception on Integration of HIV and NCDs

Perception is defined as the way in which something is regarded, understood or interpreted. This is basically how an individual receives and interprets given information (McDonald, 2012). Integration of HIV and NCDs is perceived to be beneficial and of great important to an improved health care (van Deventer 2015). Integration on the other hand can be defined as the “management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system” (Sifaki-Pistolla et al., 2017). Integration of health services is once again a topical issue,

largely because of the rise of single-disease funding and recognition of the fact that the health Millennium Development Goals and now Sustainable Development Goals will not be met without fundamentally improving health systems(Kumar et al., 2016). Bolstering the response to NCDs is reflected in a number of Sustainable Development Goals. For example, NCD integration is inherent in goal 3, “Ensure healthy lives and promote well-being for all at all ages”. Similarly, it is an important factor in reaching goal 8, “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”. Sustainable, equitable growth requires a healthy population that has access to and can contribute to a healthy economy (Alleyne et al., 2013).According to Okooboh and Martins (2016c), majority of patients and clinicians in all groups had a positive attitude to HIV-NCDs integration. However, among the PLWHA, despite positive attitudes towards integration, majority still preferred a separate HIV clinic.

Experience in addressing HIV and NCDs shows that many challenges are common to both: organizing and delivering adequate prevention services, chronic treatment and care, addressing the social and environmental determinants of these health issues, and reaching people without access to these services (Patel et al., 2018). It is believed that integrated services will ensure that services are managed and delivered together for an efficient and high quality service, separating out services for specific diseases results in inefficient services and service duplication (Okooboh and Martins, 2016c). It is also believed that integration of care leads to better health overall, universal access to services and equal access for people from different communities and socio-economic backgrounds, and a more convenient and satisfying service (Dudley and Garner, 2011).

In a mixed method study, Colombini et al. (2016) explored the perceptions and experiences of women living with HIV attending reproductive health services in Kenya. Majority of the women, 57% of the 30 women interviewed showed preference for integrated healthcare services. The main reasons cited by the 57% who preferred receiving SRH and HIV services together were to save money, especially bus fare and time, and reduce time off at work. Shayo et al. (2022) explored the acceptability of integrated healthcare services among health workers and patients in Tanzania. Shayo et al. (2022) reported high acceptability among the patients and healthcare workers for the integrated services. Regarding satisfaction with the clinic layout, seating arrangements, and the delivery of medical care services, high approval was connected to more exposure to service integration (Shayo et al., 2022). The patients' flexibility to roam between service locations and to converse with one another about the services and their own health status was also important to their satisfaction (Shayo et al., 2022).

The patient-provider relationship seems to be centered on medication compliance and keeping appointments at the clinic as a part of the delivery of high-quality services (Shayo et al., 2022). Benefits included the identification of undetected disease issues, patient time and expense savings, and health education for several ailments. However, there were some difficulties, such as lengthy wait times and little privacy in lower and peripheral health institutions because of infrastructural restrictions (Shayo et al., 2022). Singh et al. (2021) while conducting a scoping review on the perceptions of HIV patients on the integration of HIV care with type 2 diabetes and hypertension services, found that patients who received integrated care reported less HIV-related stigma, cheaper travel and medical expenses, and more comprehensive, person-centered care. Long clinic waiting times and a lack of continuity of care in some clinics due to a staffing

shortage were major issues. The perception of non-integrated care was that it took longer and cost more money.

2.4 Benefits of Integration of HIV and NCDs

A study in Yola Nigeria by Okooboh and Martins, (2016a) showed that there was highest positive frequencies to the research statement “Integration makes it possible for more people to be tested and enrolled into care.” This study in Nigeria was similar to that in Lusaka, Zambia where all the respondents had a positive attitude to the benefits of integration especially with respect to the equitable distribution of scarce resources, shared work load among healthcare workers, reduced stigma and reduced service duplication (Mwape et al., 2010a). Okooboh and Olutayo, (2016) alluded that the patient waiting times would reduce with integration suggesting that this could be due to the fact that integration would be a shared work load among health care works hence leading to an improved health care. The study also showed that integrated services would offer a less stigmatizing environment that could reduce stigma associated with HIV/AIDS infection because of perceived anonymity (Okooboh and Martins, 2016b).

According to Okooboh and Olutayo (2016), the positive attitude of the out-patients to integration was due to the increasing knowledge and awareness about HIV infection and its mode of transmission and so, less people feel threatened associating with HIV infected people. Also, the high prevalence of the disease in the state made it possible that many individuals were associated, or supported at least one HIV infected person, therefore if one visit to the health facility would take care of most or all of the patient’s health needs, then integration may be a welcomed innovation (Okooboh and Martins, 2016a). Integration may also result in time and cost savings for the patient, and can help address such problem areas as lost wages and out-of-pocket expenses for transportation (WHO, 2018). WHO (2020) report also stated that integration

program employs Patient-centered and diseases-centered approaches which may also lead to self-empowerment and self-management forming good foundation for HIV response.

Hospitals and health systems have adopted integration as a crucial strategy to maintain or increase patient access to care. The advantages of integrated HIV care were examined by Hoang et al. (2009), who discovered that patients who went to HIV clinics with more integrated specialized services were more likely to achieve viral suppression. Patients were three times more likely to achieve viral suppression when they visited clinics that provided hepatitis, psychiatric, psychological, and social services in addition to primary care and HIV specialty services than when they visited clinics that only provided primary care and HIV specialty services (Hoang et al., 2009). A study to ascertain the effects of integrated HIV care was also carried out by Mutemwa et al. (2013). service uptake, increased client willingness to take an HIV test, and decreased client loss infrastructural and logistical deficiencies, such as insufficient physical room space, equipment, drugs, and other medical supplies, as well as increased workload, and waiting times.

2.5 Possible Challenges of Integration of HIV and NCDs

Lack of staff and staff absenteeism, gaps in service providers' knowledge, insufficient space, and a lack of essential supplies are issues that hinder the integrated delivery of HIV and other healthcare treatments such NCDs, PNC, and ANC are the most common challenges associated with integrated clinics according to Ahumuza et al. (2016), Mutemwa et al. (2013), (Sweeney et al., (2014), Njau et al. (2014) and Tylee et al. (2007).

2.5.1 Fewstaff in the Integrated Clinics

A significant obstacle in the delivery of health services for HIV patients was the lack of staffing in comparison to the large number of patients in the integrated health clinics (Mutemwa et al.,

2013; Sweeney et al., 2014 and Njau et al., 2014)). Ahumuza et al. (2016) noted that the provision of many services for mothers seeking services in integrated clinics and their babies was hampered by the inadequate staffing. This had an impact on the standard of medical care as well, including excessive wait times and health professionals' failure to give women the vital information they required to advance both their own and their children's health (Ahumuza et al., 2016). Vital checks like monitoring blood pressure and weighing babies, for instance, reportedly were not done consistently at some medical facilities. Only midwives could make final decisions on difficult matters in the District referral hospitals the women attended because there was only one gynecologist on staff at all times (Ahumuza et al., 2016).

In a separate study, Njau et al. (2014) noted laboratories in an integrated HIV clinics face staffing issues as well, with the majority of healthcare facilities employing just one lab technician. When a laboratory technician was not present, patients would still receive care even though no lab tests were being done. Healthcare providers' absences were ascribed to a number of issues, such as being involved with other health facilities, while salary delays were the biggest challenges (Njau et al., 2014)

2.5.2 Gaps in Knowledge and Skills

In their study, Ahumuza et al. (2016) identified a number of knowledge gaps in offering integrated care. Implementing permanent procedures, such as intrauterine devices (IUD), long-term methods, and HIV testing and counselling were some of the gaps. Ahumuza et al. (2016) also noted that the patients attending integrated HIV clinics interviewed complained about the health professionals' lack of expertise in administering several long-term family planning procedures.

2.5.3 Confidentiality Concerns

In addition to communication issues, the integrated health facilities fail to uphold anonymity for patients who are HIV-positive (Mutemwa et al., 2013 and Sweeney et al., 2014). According to Mutemwa et al. (2013) and Sweeney et al. (2014), given the practice of segregating the patients who were HIV positive from those who were HIV negative, maintaining secrecy was difficult from the patients the authors interviewed. Mothers who remarked that after attending general health education presentations, all ANC attendees were invited to test for HIV also brought up the difficulties of maintaining secrecy (Mutemwa et al. 2013 and Sweeney et al., 2014). Those who tested positive for HIV were escorted to a separate room for in-depth post-test HIV counselling. In fact, discussions with healthcare professionals indicated that in some cases, the behavior of healthcare professionals could serve as a basis for some moms to infer the HIV status of their co-workers (Mutemwa et al., 2013) and (Sweeney et al., 2014). When questioned, the majority of health professionals responded that the practice of separating HIV positive and negative mothers was aimed to connect HIV positive women to appropriate care rather than to divulge their status (Mutemwa et al., 2013 and Sweeney et al., 2014).

In the two study areas, both service providers and clients reported that stigmatizing positive mothers made some of the mothers reluctant to give birth in medical facilities (Mutemwa et al. 2013 and Sweeney et al., 2014). To avoid ART services and the related shame, many women resorted to asking acquaintances to bring their children for immunizations at the medical facility. One of the health workers commented that it would be challenging to monitor moms for the uptake of services for preventing mother-to-child HIV transmission in such circumstances (Mutemwa et al. 2013 and Sweeney et al., 2014).

2.5.4 Workload

Tylee et al. (2007) noted that health professionals complained of workload in integrated health clinics, especially that daily register filling involved too much paper effort. Some of the work would go unfinished as the few health staff attempted to give a variety of services to the many patients (Tylee et al., 2007). The provision of integrated services, according to health workers, requires them to fill out numerous registers on a daily basis, including the ANC, PNC, FP, HIV, and immunization registers, which is an excessive amount of paper work (Tylee et al. 2007).

2.5.5 Limited Working Space, or Overcrowding

As argued by Okooboh and Martins (2016), the majority of health workers and patients highlighted the constrained space in medical facilities. Although various new services were added, it was noticed that the space was never modified in integrated clinics, forcing all of the patients—including those who had tuberculosis—to congregate in one area (Okooboh& Martins, 2016). Some of the health facilities were unable to offer integrated services due to space restrictions. Few rooms were mostly to blame for this. Due to this imperfect integration, the authors claimed that numerous patients were denied access to healthcare services (Okooboh& Martins, 2016). (Wanikina Muke et al. 2022)

2.5.6 Inadequate Supplies

It was difficult for all of the health facilities to keep up with the demand for essential supplies for integrated services. Gloves, medications, and HIV test kits were a few of the products that were frequently out of stock (Okooboh & Martins, 2016).

2.5.7 Shortage of Funding Integrated Facilities

Ahumuza et al. (2016) noted that other challenges associated with integrated clinics were a lack of funding for some programs, such as the community services offered by village health teams

(VHTs). Home visits, identifying and referring women for medical care, and other services were among those that VHTs primarily offered (Ahumuza et al., 2016). Limited financing resulted in fewer or no monitoring visits, fewer home visits, and a failure to refer mothers as needed for necessary medical care. Additionally, due to a lack of money, essential supplies ran out, which hampered the provision of integrated services (Ahumuza et al., 2016).

Despite the fact that integration has some benefits, studies have reported some possible challenges that are associated with integration of HIV and NCDs. Okooboh et al. alluded that integration may lead to an increased workload for the health workers which might result in a decrease in the quality of service rendered (Okooboh and Martins, 2016a). The increased workload is as a result of increased incidence and prevalence of Non-communicable diseases major risk factors of hypertension, cardiovascular disease, dyslipidemia, hyperglycemia and obesity among people living with HIV (PLWH) (Olawuyi and Adeoye, 2018).

The perception that integration is the panacea for the NCDs response and that integration alone is an adequate solution to this massive and growing disease burden is another challenge for integration. NCDs burden is bigger and more complex than most of the health programs within which we desire to integrate. Evidence-based and effective integration can certainly help but it is not the ultimate solution for the NCDs disease burden. Moreover, integration of NCDs with other poorly funded health programs in the presence of a weak health infrastructure will not make a significant dent in the NCDs response, and might end up weakening both programs. While integration efforts continue, an international, national and community response similar to the HIV response is needed (Piot et al., 2016a). Lack of adequate evidence-based data on integration effectiveness and cost-effectiveness is another big challenge. Despite decades of integration efforts in health, we are still in the dark in terms of what to integrate and what not to integrate;

what works and what does not work; and what is feasible and appropriate for different levels of health services and system in HIV and NCDs care (Torpey and Mastro, 2016). In a paper on integrated development by Petruney (2016), propose a long-term outcome whereby “integrated development approaches are considered when tackling complex, interrelated development challenges and their root causes, and deployed when appropriate”. Integration would rather be approached to explore for effectiveness, routinely considered within decision making and systematically supported (Petruney, 2016).

Also according to research study by WHO (2016) lack of integration policies and strategies at the national, regional, district and community levels highly challenges integration (WHO, 2016). There is need for comprehensive and coordinated planning and implementation of integrated services at policy-making, management and resource allocation levels, as well as within the areas of logistics, supplies, training and supervision. Moreover, integration of different services at a single site can be very expensive therefore Integration will also require adequate funding for improvements of health systems (Haregu et al., 2014b).

Another key challenge is the difficulty in evaluating large and complex integration programs, even when the initial designs are evidence based. Often, the only data available are process and limited-outcome measures. For integration to be successful and effective, sufficient funding must be allocated to determine whether it is making a difference – input and output indicators are inadequate for such an assessment. Assessment of integration outcomes should include both demand and supply sides of the services (Andermann, 2016).

Finally, the most important and challenging obstacle to integration is the vertical national and international funding silos for health programs. Unless there is a coordinated and significant

paradigm shift in strategies and funding of health programs, integration will continue to be poorly implemented and ineffective (Ahumuza et al., 2016)

2.6 Willingness of Patients and Clinicians to Participate in Integrated Clinic

Willingness of patients and clinicians to participate in a HIV and NCDs integration highly depends on the perception and benefits of an integrated system. According to (Okooboh and Martins, 2016a) in their research on attitude and perceptions of respondents on integration of HIV and NCDs they found out and concluded that, Majority of patients and clinicians in all groups had a positive attitude to integration and therefore they were willing to participate in an integrated clinic.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study Design

The study adopted a cross-sectional study design to assess perception of patients and care providers on the integration of HIV and NCDs care services at JOOTRH.

3.2 Study Setting

3.2.1 Study Area

The study was conducted in Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH), located in Kisumu East sub county, Kisumu County in western Kenya. The hospital is the major referral hospital in Nyanza, western and North Rift Kenya. It serves a population in excess of 5 million; average annual out -patient visits are 197,200 and in-patient admissions of about 21,000. JOOTRH provides HIV health services and has the largest number of PLHIV. Specifically, the study was carried out in the HIV out-patient clinic, and clinicians in both HIV and NCDs clinics. The JOOTRH HIV clinic has a cumulative patient enrolment of approximately 22,000; currently over 5900 patients are actively accessing HIV management services in the clinic. In addition to HIV clinics, JOOTRH provide other outpatient clinic services including, Mother and Child Health care, Medical outpatient clinics, Surgical Outpatient clinics, Obstetric outpatient's clinics, Ophthalmology, ENT, rehabilitation and Laboratory services. The number health workers working in these clinics is undocumented. The map Kisumu showing JOOTRH is as shown in appendix XII.

3.2.2 Study population

The study population was adult HIV patients with one or more NCDs co-morbidity attending HIV outpatient clinic at JOOTRH and clinicians (Nurses, medical Officers, clinical officers and consultant physicians) who were working in HIV and NCDs out-patients' clinics.

3.2.3 Inclusion Criteria

- Patients included in this study were PLWHA above 18 years that consented. All health workers involved in both HIV and Medical out patients clinics (MOPC) that consented.

3.2.4 Exclusion Criteria

- Patients who required urgent medical attention during the time of study and could not respond to the study questionnaires and adult patients not leaving with HIV.

3.3 Sampling Method and Determination of Sample size

3.3.1 Sampling Method

The sampling technique used for administering questionnaire P (Patients) was the systematic random sampling method. Respondents in Questionnaire C (clinicians) were conveniently sampled and consisted of all Clinicians that were available at the time of the study in HIV and MOPC and consented to partake in the study. Proportion to size was used to determine the number of participants sampled per study group

3.3.2 Sample Size Calculation

The sample size was determined using Fisher *et al.*, (1998), as shown below. A confidence level of 95% was assumed.

$$n = z^2 pq/d^2$$

Where: n = the desired sample size.

Z = the standard normal deviate at the required confidence level (risk error 5%... z = 1.96),

p = The prevalence of desired characteristics was estimated to be 50%

d = absolute precision expressed as a fraction of 100 (accuracy level of 5% was chosen = 0.05)

$$q = 1-p \text{ (that is } 100\% - 50\%) = 50\% \text{ or } 0.50$$

$$n = \frac{(1.96)^2 (0.50 \times 0.50)}{0.05^2} = \text{approximately } 384$$

An initial sample size of 384 was obtained. With an addition of 10% for attrition, a total of 422 patients and 30 clinicians working in the HIV and NCDs out-patients clinic were sampled and recruited into the study.

3.4 Research Instruments

Closed ended four-point Likert structured questionnaires P and C patients and Clinicians respectively were used. The questionnaire P were administered by trained research assistant using English and Kiswahili versions for respondents who could not understand English as shown in Appendices III, IV, V and VI.

3.5 Validity and Reliability

The contents of each questionnaire type were reviewed by a group of experts which included two supervisors and two other experts in the school of medicine. The experts agreed the contents of the questionnaires were valid and reflected the study objective. The questionnaires were then pretested at another comprehensive site with a population having similar socio-demographic variables as that of Jaramogi Oginga Odinga Teaching and Referral Hospital. The reliability test of perception for questionnaires C and P gave Cronbach's alpha values of 0.79 and 0.8 respectively. According to Nardi (2018) Cronbach's alpha of above 0.7 is good for calculating the degree of association in individual items to increase validity of the research instrument to achievement the objectives of the study.

3.6 Data Collection

A validated and pretested questionnaire was employed as data collection tool. Two different questionnaires were developed and labeled accordingly for two categories of respondents i.e. Questionnaires P and C for Patients and Clinicians respectively. Questionnaires P had a Kiswahili version administered to those who could not understand English and was administered by trained research assistants while Questionnaires C was self-administered by respondents. The

questionnaires each consisted of four sections with questions majorly similar for all categories of respondents with a few specific questions for a specific group(s). Some statements were also simplified for particular respondent groups. Section 1; consisted of the respondents' demographic variables such as sex, age, and patient's NCDs (Questionnaire P) and Clinic category for Questionnaire C. Section 2; consisted of statements to address the perception of respondents on the benefits of integrating HIV with NCDs services. Section 3; consisted of statements each assessing the perception of respondents on challenges of integration. Section 4; consisted of a statement to assess the willingness of respondents to work or be seen in integrated clinics. The time needed to complete all the questions was around eight to ten minutes. The survey process was monitored by the researcher himself and a nurse research assistant.

3.7 Data Analysis

Data collected was analyzed using SPSS (Statistical Package for Social Sciences) version 22. Questionnaires were manually validated for errors. All the data with interval and ratio scales were explored using graphical methods (histogram with normal distribution curve) to test for normality. Measures of central tendency and dispersion were used to describe continuous data of which percentages were used to describe categorical data. For the 4-point Likert scale used ranging from strongly disagree to strongly agree; a mark of 1 was awarded for strongly disagree, 2 for disagree, 3 for agree, and 4 for strongly agree. Total scores for each question under each objective were added to get the aggregate score and mean scores calculated by dividing the total scores by the total number of Respondents as shown in formula below:

$$\text{Total scores} = \sum(f_i \times \text{Likert scale Score})$$

Where:

f_i = frequency of each likert scale score (number of respondents)

i = Likert Scale Scores, namely Strongly Disagree (1), Disagree (2), Agree (4), Strongly Agree (5)

Mean scores = \sum (fix Likert item score) ÷ Number of Respondents

Perception / attitude was determined based on the argument that a mean score of 2.5 or less is a negative perception or attitude towards integration and mean score 2.6 and above is a positive perception / attitude towards integration of HIV and NCDs care.

1 ≥ Negative ≤ 2.5 and 2.6 ≥ Positive ≤ 4

3.8 Ethical Considerations

3.8.1 Consent

The study was carried out after approval from the Maseno Ethical Review committee (MUERC/617/18) and Jaramogi Oginga Odinga Teaching and Referral Hospital Ethical Review committee (ERC.IB/VOL.1/566). Introduction letter was sought from the school of graduate studies (SGS). CEO of Jaramogi Oginga Odinga Teaching and Referral hospital (JOOTRH) permission was sought prior to the study.

Informed consent was signed by all the study participants before administering the questionnaires.

Confidentiality, anonymity, privacy and dignity were fully guaranteed.

Participants were reminded of their right to withdraw from the study or terminate the survey at any time before commencing the session.

Participation in the study was voluntary.

3.8.2 Risks and Discomforts

There were no risks to participants;

3.8.3 Confidentiality and Data Storage

The information obtained was treated as confidential, only accessible to members of the research team who safeguarded it. All data were stored on encrypted hard drives, hard copies were under lock and key and only accessible to members of the research team.

3.8.4 Potential Benefits

Participants were advised they would not benefit directly from the study but their participation in the assessment project would inform efforts to improve health care of persons with HIV and NCDS.

CHAPTER FOUR

RESULTS

4.1 Introduction

The chapter presents the study results obtained from the data collected and analysed. The study set out to accomplish three key practical goals. The first step is to determine whether integrating HIV and NCDs care services will improve the quality of HIV and NCDs care provided in HIV outpatient clinics. Second, to determine whether integrating HIV and NCDs makes it more difficult to provide care for HIV and NCDs in HIV outpatient clinics. Third, to determine if clinicians would continue to provide care and whether patients would visit HIV outpatient clinics following the merging of HIV and NCDs treatment services. The findings are organized here according to the study's goals into sections.

4.2 Demographics and Clinical Characteristics of Study Population

4.2.1. Patients

This study included 422 respondents living with HIV and NCDs co-morbidity. The baseline demographics and clinical characteristics of patients are summarized in table 1 below. 50.2% of the study population were males, Majority of Respondents were aged between 41-50 years at 34.0%, Hypertension was the leading NCD at 75.6%, Diabetes Mellitus 18.2%, Heart Failure 0.2%, Chronic Renal Disease 1.1% as shown in Table 4.2.

Table 4.1: Baseline characteristics of study participants (patients)

PERSONAL CHARACTERISTICS		RESPONDENT GROUPS	
		Clinicians	patients
Age	≤20	0 (0.0%)	27 (6.5%)
	21 – 30	9 (30.0%)	38 (9.1%)
	31 – 40	13 (43.3%)	122 (28.9%)
	41 – 50	7 (23.3%)	144 (34.0%)
	51 – 59	1 (3.3%)	66 (15.6%)
	≥60	0 (0.0%)	25 (6.0%)
Total		30 (100%)	422 (100%)
Sex	Male	14 (46.7%)	212 (50.2%)
	Female	16 (53.3%)	210 (49.8%)
Total		30 (100.0%)	422 (100.0%)

Table 4.2: Type of NCDs in study participants (patients) by gender distribution

TYPES OF NCDs	Gender of Respondent (Patients)		
	Male n (%)	Female n (%)	Total n (%)
Hypertension	156(73.5)	163(77.7)	319 (75.6)
Diabetes Mellitus	43 (20.4)	34 (16.1)	77 (18.2)
Heart Failure	0 (00.0)	1 (0.4)	1 (0.2)
Chronic Renal Disease	2 (0.9)	3 (1.3)	5 (1.1)
Others	11 (5.3)	9 (4.5)	20 (4.9)
Total	212 (100)	210 (100)	422 (100)

4.2.2 Clinicians

The study included 30 clinicians working in the HIV and NCDs clinics mostly Aged 31 – 40 at 43.3% of which majority were females at 53.3%. Nurses were 16 (53.3%), Clinical officers 11 (36.7%) and Medical officers 3 (10.0%) as shown in Table 4.1 above and table 4.3 below;

Table 4.3: Category of clinicians based on the Clinic of operation

CATEGORY	CLINIC		
	HIV Clinic n (%)	NCDs Clinic n (%)	Total n (%)
Nurse	13 (68.4)	3 (27.3)	16 (53.3)
Clinical officers	6 (31.6)	5 (45.5)	11 (36.7)
Medical officers	0 (00.0))	3 (27.3)	3 (10.0)

4.3 Integration of HIV and NCDs whether Beneficial to NCDs and HIV Care

4.3.1 Patients Response

4.3.1.1 Combining of HIV and Other chronic diseases care in the HIV clinic would improve care for both HIV and NCDs

Out of Four Twenty two (422) respondents, 210 (49.8%) strongly agreed, 194 (46.0%) Agreed, 13 (3.1%) Disagreed and 5 (1.1%) strongly Disagreed with a Positive Mean Score of 3.4 as shown in Table 4.4 below.

Table 4.4: Patient's response to whether integration will be beneficial for NCDs/HIV Care, may be cost effective and may decrease clinic visits frequency

BENEFITS OF INTEGRATION	1		2		3		4		Total Scores	Mean Score	Attitude
	(F)	(%)	(F)	(%)	(F)	(%)	(F)	(%)			
Integrated clinic will be beneficial for NCDs and HIV care	5	1.1	13	3.1	194	46.0	210	49.8	1453	3.4	Positive
Integration may be cost effective	3	0.7	52	12.4	207	49.1	160	37.1	1368	3.2	Positive
Integration may decrease clinic visits frequency	26	6.2	81	19.1	221	52.4	94	22.2	1227	2.9	Positive
Overall Mean Score										3.2	Positive

Mean Score of $1 \geq$ and ≤ 2.5 is Negative Response to Integration being beneficial and $2.6 \geq$ and ≤ 4 is Positive Response to integration beneficial

4.3.1.2 Integration may be more Cost- Effective as Resources are Shared for HIV And NCDs Care

One hundred and sixty160 (37.8%) respondents strongly agreed, 207 that translated to (49.1%) Agreed, 52 that translated to (12.4%) Disagreed and 3 (0.7%) strongly Disagreed with a Positive Mean Score of 3.2 as shown in the Table 4 above.

4.3.1.3 Integration may Decrease the Frequency of Clinic Visits for Patients with HIV and NCDs

Ninety four 94 (22.2%) strongly agreed, 221 (52.4%) Agreed, 81 (19.1%) Disagreed and 26 (6.2%) strongly Disagreed with a Positive Mean Score of 2.9 as shown in Table 4.4 above.

4.3.2 Clinicians Response

4.3.2.1 Integration of HIV and NCDs Care in the HIV Clinic would Improve Care for Persons with HIV and NCDs Comorbidity

Most Clinicians 87% strongly agreed that Integration of HIV and NCDS care in the HIV clinic would improve care for persons with HIV and NCDS comorbidity, while 13% Agreed. None of the clinicians disagreed with a Positive Mean Score of 3.8 as shown in Table 4.5 below.

Table 4.5: Clinician responses on whether integration would improve care, capitalize on the good foundations built and be cost effective as resources are shared for HIV and NCDs
Mean Score of $1 \geq$ and ≤ 2.5 is Negative Response to Integration being beneficial and $2.6 \geq$ and

BENEFITS OF INTEGRATION	1		2		3		4		Total Scores	Mean Score	Attitude
	(F)	(%)	(F)	(%)	(F)	(%)	(F)	(%)			
Integration would improve care for a person with HIV and NCDs co-existence	0	0.0	0	0.0	4	13.3	26	86.7	116	3.8	Positive
Integration of NCDs and HIV care could capitalize on the good foundations built with HIV treatment scale-up	0	0.0	0	0.0	4	13.3	26	86.7	116	3.8	Positive
Integration may be more cost-effective as resources are shared for HIV and NCDs care	0	0.0	5	16.7	12	40.0	13	43.3	98	3.3	Positive
Overall Mean Score										3.6	Positive

≤ 4 is Positive Response to integration beneficial

4.3.2.2 Integration of NCDs AND HIV Care could Capitalize on the Good Foundations Built with HIV Treatment Scale-Up

Eighty seven percent (87%) and 13% of the respondents strongly agreed and agreed respectively that Integration of NCDs AND HIV care could capitalize on the good foundations built with HIV treatment Scale-Up, none disagreed with a Positive Mean Score of 3.8 as shown in Table 4.5 above.

4.3.2.3 Integration may be More Cost-effective as Resources are Shared for HIV and NCDs Care

Majority of respondents agreed that integration will be cost effective where by 43.3% strongly agreed, 40% agreed with a positive Mean Score of 3.3 and only 16.7% disagreed as shown in Table 4.5 above.

4.4 Integration of HIV and NCDs Care whether would Bring Challenges

4.4.1 Patients Response

4.4.1.1 Combining of HIV and Other Chronic Diseases Care in the HIV Clinic would affect Care for your HIV in the clinic

It was observed that most respondents about 48% disagreed and 26% strongly disagree with a Negative Mean Score of 2.1 and 7% strongly agreeing and 19% agreeing, as shown in Table 4.6 below.

4.4.1.2 Integration of HIV and NCDs care would Cause Crowding in the Integrated Clinic and Slow Service Delivery for Patients

Out of 100% response rate 12.3% strongly agreed, 44.3% agreed, 28.7% disagreed and 14.7% strongly disagreed with overall Negative Mean Score of 2.5 as shown in Table 4.6.

Table 4.6: Patient’s response on whether integration of HIV and NCDs will challenge NCDs and HIV care

CHALLENGES OF INTEGRATION	1		2		3		4		Total Scores	Mean Score	Attitude
	(F)	(%)	(F)	(%)	(F)	(%)	(F)	(%)			
Combining of HIV and Other chronic diseases care in the HIV clinic would affect care for your HIV in the clinic	110	26.0	202	48.0	80	19.0	30	7.0	874	2.1	Negative
Integration of HIV and NCDs care would cause crowding in the integrated clinic and slow service for patients	62	14.7	121	28.7	187	44.3	52	12.3	1073	2.5	Negative
Overall Mean Score										2.3	Negative

Mean Score of $1 \geq$ and ≤ 2.5 is Negative Response to Integration may Challenges and $2.6 \geq$ and Mean Score of $1 \geq$ and ≤ 2.5 is Negative Response to Integration may Challenges and $2.6 \geq$ and ≤ 4 is Positive Response to integration may challenges

4.4.2 Clinicians Response

4.4.2.1 HIV with NCDs Co-Morbidity Imposes Challenges to Care of both HIV and NCDs in the Clinics

Fifty three percent (53%) of respondents strongly Agreed while 30% Agreed with a positive Mean Score of 3.4 and 17% disagreed that HIV with NCDs co-existence imposes challenges to care of both HIV and NCDs in the Clinics as shown in Table 4.7.

Table 4.7: Clinician responses on whether integration of HIV and NCDs will challenge NCDs and HIV care

CHALLENGES OF INTEGRATION	1		2		3		4		Total Scores	Mean Score	Attitude
	(F)	(%)	(F)	(%)	(F)	(%)	(F)	(%)			
HIV with NCDs co-existence imposes challenges to care of both HIV and NCDs in the clinics	0	0.0	5	16.7	9	30.0	16	53.3	101	3.4	Positive
Integration of HIV and NCDs care in the HIV clinics may disrupt service provision and potentially cause dissatisfaction among patients, particularly in the short term	12	40.0	14	46.7	1	3.3	3	10.0	55	1.8	Negative
Integration of HIV and NCDs care in poorly funded programs would weaken care for both NCDs and HIV patients	0	0.0	5	16.7	7	23.3	18	60.0	103	3.4	Positive
Lack of national and county policies and strategies would affect implementation of integration and ultimately care for both NCDs and HIV	0	0.0	0	0.0	16	53.3	14	46.7	104	3.5	Positive
Overall Mean Score										3.0	Positive

Mean Score of $1 \geq$ and ≤ 2.5 is Negative Response to Integration may Challenges and $2.6 \geq$ and ≤ 4 is Positive Response to integration may challenges.

4.4.2.2 Integration of HIV and NCDs Care in the HIV Clinic may Disrupt Service Provision and Potentially Cause Dissatisfaction among Patients, Particularly in the Short Term

Forty percent (40.0 %) respondents strongly Disagreed, 47% Disagreed while 10.0% and 3% strongly agreed and agreed respectively that integration may cause disruption and dissatisfaction with a Negative Mean Score of 1.8 as shown in Table 4.7.

4.4.2.3 Integration of HIV and NCDs Care in Poorly Funded Programs would Weaken Care for both NCDs and HIV Patients

Sixty percent (60%) respondents strongly agreed, 23% agreed with a positive Mean Score of 3.4 and 17% disagreed that Integration of HIV and NCDs Care in poorly funded programs would weaken care for both NCDs and HIV patients as shown in Table 4.7.

4.4.2.4 Lack of national and county policies and Strategies would affect implementation of integration and ultimately care for both NCDs and HIV

More than half (53%) agreed that Lack of national and county policies and Strategies would affect implementation of integration and ultimately care for both NCDs and HIV with a positive Mean Score of 3.5 as shown in Table 4.7.

4.5 Clinicians and Patients Willingness to Participate in the Integrated HIV And NCDs Clinic

4.5.1 Patients Response

4.5.1.1 Would you Participate in this Combined Clinic Rather than the Separate Clinics?

Most respondents about 83.6% definitely said Yes, 13.3% probably said Yes, 2.0% probably said No and 1.1% definitely said No. With a positive mean score of 3.8 As shown in Table 4.8.

Table 4.8: Patients willingness to be seen in integrated clinic

PATIENT ATTITUDE QUESTION	1		2		3		4		Total Scores	Mean Score	Attitude
	(F)		(F)		(F)		(F) (%)				
	(%)		(%)		(%)						
Are you willing to be seen in integrated clinics for persons with both HIV and NCDs	5	1.1	8	2.0	56	13.3	353	83.6	1601	3.8	Positive
Overall Mean Score										3.8	Positive

Mean Score of $1 \geq$ and ≤ 2.5 is Negative Attitude to Integration and $2.6 \geq$ and ≤ 4 is Positive Attitude to integration.

4.5.2 Clinicians Response

4.5.2.1 Would you Participate in Integrated Clinics to Offer Care for Patients with both HIV and NCDs

A hundred percent (100%) respondents said definitely yes on the question “Would you participate in integrated clinics to offer care for patients with both HIV and NCDS” with a Positive mean score of 4. As shown in Table 4.9.

Table 4.9: Clinicians willingness to work in the integrated clinic

CLINICIANS ATTITUDE QUESTION	1		2		3		4		Total Scores	Mean Score	Attitude
	(F) (%)		(F) (%)		(F) (%)		(F) (%)				
Are you willing to work in integrated clinics to offer care for patients with both HIV and NCDs	0	0.0	0	0.0	0	0.0	30	100	120	4	Positive
Overall Mean Score										4	Positive

Mean Score of $1 \geq$ and ≤ 2.5 is Negative Attitude to Integration and $2.6 \geq$ and ≤ 4 is Positive Attitude to integration.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter presents discussion of the results and findings from chapter 4 above and the results are in support to the literature presented in chapter two.

5.2 Whether Integration of HIV and NCDs will be Beneficial to Health Care

Table 4 shows 210 out of 422 (49.8%) and 194 out of 422 (46.0%) strongly agreed and Agreed respectively that combining HIV and NCDs Clinic would improve care for both HIV and NCDs, which was similar to a study in Lusaka, Zambia where all the respondents had a positive attitude to the benefits of integration especially with respect to the equitable distribution of scarce resources, shared workload among healthcare workers, reduced stigma and reduced service duplication (Topp et al. 2013) leading to improved health care (Okooboh and Martins 2016a).

Study findings shows that Most respondents strongly agreed and agreed that integration of HIV and NCDs would be cost-effective as resources are shared for HIV and NCDs care and that Integration may decrease frequency of clinic Visits for Patients with HIV and NCDs. About 160 (37.8%) strongly agreed and 207 (49.1%) Agreed for cost effectiveness while 94 (22.2%) strongly agreed and 221 (52.4%) Agreed that integration may decrease frequency of clinic visits. This study findings are similar to research study by WHO (2018) that integration may result in time and cost savings for the patient, and can help address such problems like lost wages and out-of-pocket expenses for transportation as the patient is attended to at the same clinic for different diseases without wasting transportation fees and other expenses moving to different clinics. A similar study in Yola, Nigeria by (Okooboh and Martins, 2016b) also alluded that the patient waiting times would reduce with integration because would be a shared work load among health care works hence increasing efficiency of services. Clinic visit times will be reduced with

integration because persons living with HIV and has NCDs would be attended to at the same Centre efficiently minimizing probable chances of frequent visit to the clinic.

Like patients about 87% respondents (Clinicians) strongly agreed that integration would improve care for a person with HIV and NCDs. Also 87% of clinicians strongly agreed that, integration could capitalize on the good foundations built, this findings is align to the literature on the research study by (WHO, OECD 2018) that integration program would employ disease centered and patient centered approaches which may lead to self-empowerment and management forming good foundation built for HIV response. About 40% and 43% of the clinicians agreed and strongly agreed respectively that integration can be cost effective as resources are shared for HIV and NCDs; this could be due to the fact that most services would be administered at the same clinic minimizing travelling expenses and referrals.

5.2.1 Whether Integration would Challenge NCDs and HIV Care

The findings shows that most respondents (patients) about (48%) and 26% disagreed and strongly disagreed respectively that combination of HIV and other chronic diseases care in the HIV clinic would affect care for HIV in the clinic; this could be due to the positive perception on integration as stated in the literature on the research done by (Okooboh and Martins 2016b) in Yola, Nigeria. The respondent's opinions on integration effect on service delivery and crowding was evenly distributed, 12.3% strongly agreed, 44.3% agreed, 28.7% disagreed and 14.7% strongly disagreed. Highest number agreed that integration would cause crowding in the integrated clinics and result to slow service delivery; which is similar to the study done in Yola, Nigeria by (Okooboh and Martins 2016b) that integration may lead to an increased workload for the health workers which might result in a decrease in the quality of service rendered. Also According to (Olawuyi and Adeoye 2018) the increased workload is as a result of increased

incidences and prevalence of Non-communicable diseases major risk factors of hypertension, cardiovascular disease, dyslipidemia, hyperglycemia and obesity among people living with HIV (PLWH). Therefore, intergration may slow service delivery and cause overcrowding.

From Table 7 most respondents (clinicians) about 53.3% and 30% strongly agreed and agreed respectively that HIV and NCDs co-existence imposes challenges to care of both HIV and NCDs in the Clinics; this could be due to clinician opinion that they may be overworked in an integrated clinic hence being negatively affected by integration (Okooboh and Martins 2016b). 60% and 23.3% strongly agreed and agreed respectively that, Integration of HIV and NCDs Care in poorly funded programs would weaken care for both NCDs and HIV patients this was; this findings is much align to the literature that integration of NCDs with other poorly funded health programs in the presence of a weak health infrastructure may not make a significant dent in the NCDs response, and might end up weakening both programs. Intergration of different programs at the same site is quite expensive .Also while integration efforts continue, an international, national and community response similar to the HIV response is needed(Piot et al. 2016b).

Assessment of integration outcomes should include both demand and supply sides of the services (Andermann, 2016). More than half (53.3%) agreed that Lack of national and county policies and Strategies would affect implementation of integration and ultimately care for both NCDs and HIV. The finding was in agreement with the study by (WHO,2016.) that lack of enforceable integration policies and strategies at the national, regional, district and community levels is a great challenge to integration. There is therefore, an urgent need for comprehensive and coordinated planning and implementation of integrated services at policy-making, management and resource allocation levels, as well as within the areas of logistics, supplies, training and supervision. However, 40.0 % strongly disagreed, 46.7% disagreed respectively that

integration may cause disruption of services provision and potentially cause dissatisfaction among patients; this could be due to the fact that integrated health services will make patients to access every kind of services he/she requires in satisfaction.

Some challenges that hinder integration that this study did not find out include Lack of staff and staff absenteeism, gaps in service providers' knowledge, insufficient space, and a lack of essential supplies according to Ahumuza et al. (2016), Mutemwa et al. (2013), (Sweeney et al., 2014), Njau et al. (2014) and Tylee et al. (2007).

5.2.2 Willingness of Patients; and Clinicians to Participate in Integrated Clinic

It was observed (as shown) from Table 8 and 9 that most clinicians and patients were much willing to work and be seen in the integrated clinic respectively. Out of 422 Patients, 83.6% definitely said Yes, 13.3% probably said Yes, 2.0% probably said No and 1.1% definitely said No. All clinicians, 100% said definitely yes on the question “Would you participate in integrated clinics to offer care for patients with both HIV and NCDs”. This finding was similar to the research study in Yola, Nigeria by (Okooboh and Martins 2016b) on the attitude and perceptions of respondents on integration of HIV and NCDs where they found out and concluded that, Majority of patients and clinicians in all groups had a positive attitude to integration and therefore they were willing to participate in an integrated clinic.

CHAPTER SIX

CONCLUSION

6.1 Conclusion

The purpose of the study was to ascertain how patients and medical professionals felt about the integration of HIV and NCD care services. The main focus was on benefits, challenges and the likelihood of attending and working in the integrated clinics. Most respondents perceived that the integration of HIV and NCDs care services would lower frequency of visiting clinics, improve care for both HIV and NCDs in the HIV outpatient clinic, and enhance cost effectiveness of accessing quality health care. On the challenges, it was apparent that the integration of HIV and NCDs care services would lead to crowding and workload for patients and clinicians respectively. Regardless of the challenges, both patients and clinicians were overwhelmingly interested in attending and working respectively in integrated outpatient clinics for HIV and NCDs .

6.2 Research Limitations

The study was limited to studying NCDs in MOPC and HIV Clinic only leaving out other areas where other NCDs are treated. Therefore, the findings cannot be generalized since it never involved all other clinics where NCDs are treated.

The second limitation this study was only carried out in JOOTRH leaving out many other hospitals in Kisumu and the region and hence the findings of this study can not be generalized to all hospitals.

6.3 Recommendations

Based on the conclusions drawn from the study the following recommendations are proposed:

- i. From Research objective One, we recommend integration of HIV and NCDs care to continue because integrated care offers improved care for both HIV and NCDs, it's cost

effective as resources as are shared for HIV and NCDs care. Integration may result in time and cost savings for the patient, and can help address such problems like lost wages and out-of-pocket expenses for transportation as the patient is attended to at the same clinic for different diseases without wasting transportation fees and other expenses moving to different clinics.

- ii. From Research objective two of the study, we recommend increase of facilities and staff in integrated clinics to address issues of Overcrowding and increased staff workload.

6.4 Suggestion for Further Research

- i. On the broad objective, the investigation of clinicians', and patients' perception on HIV and non-communicable disease integration in HIV out-patient clinic JOOTRH, Kisumu-Kenya. The study recommended for a wider study area in future that would cover more than one hospital. This would increase the target population which might be very reliable in drawing of conclusion that are more proactive to the research objectives.

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APPENDICES

APPENDIX I: RESPONDENTS INFORMED CONSENT FORM

RESEARCH TITLE

Investigating the perception of patients and clinicians on integration (merging) of HIV and NCDs (Chronic non infectious diseases like diabetes, hypertension etc.) care in the outpatient clinics.

INTRODUCTION

I would like to invite you to participate in a research study involving investigating your perception on integration of NCDs and HIV care in the outpatient clinic, which will add to the knowledge related to NCDs and HIV care in outpatient clinic.

My name is **Dr. Luete Richard**; I am a Master student at Maseno University. I am under the supervision of my faculty advisors **Professor Stephen Ogendo and Dr. Ouma Kennedy Omondi**

Field procedure: If you agree to be in this study, you will be given questionnaire with questions that require you to answer by ticking the appropriate answer. The questionnaire will include questions about your experience attending or (attending to patients with) both NCDs and HIV outpatient clinics and your perception on integration of NCDs and HIV care in the outpatient clinic.

The study will take a period of three months and each interview will take about 15 minutes

Confidentiality

Your participation in this study and your responses will be kept confidential. Any reference to you will be by pseudonym, including any direct quotes from your responses. This document and any notes or recordings that might personally identify you as a participant in this study will be kept in a locked place that only the researcher will have access to. Only the researcher and the

research supervisor might know who has participated in this study. One year after the completion of this research study all data will be destroyed.

Risks to you

There are five acknowledged risks generally associated with participation in research studies such as this one: Physical, psychological, social, economic, and legal. The researcher foresees minimal risk for those who choose to participate in this study. There are no foreseen physical risks associated with this study; other risks might include the following:

You might experience anxiety, discomfort, or negative emotions as a result of responding to the questions asked of them in this research study. If you experience a negative reaction, you may choose to skip the question, to withdraw from the study, or you may contact my faculty advisors (Supervisors) on +254714053600/+254722516098, the Jaramogi Odinga Oginga Teaching and Referral Hospital Ethics Review Committee on +254733711659 or the Maseno University Ethics Review Committee.

If you choose to participate in this study, you are encouraged to keep your participation in this study and your responses confidential. The researcher will maintain your confidentiality throughout the study, and will destroy the records of your participation one year after the study is completed.

Benefits to You

There are not foreseen direct benefits to you regarding participation in this study beyond the general knowledge that you are assisting in furthering the knowledge related to this research topic, and assisting the researcher in completing the Masters of Medicine in Emergency and Family Medicine degree requirements.

Taking part is voluntary

Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current management in the clinic. If you decide to take part, you are free to withdraw at any time.

If you have questions: Please ask any questions you have now. If you have questions later, you may contact **Dr. Luete Richard** at **luaterichard@yahoo.com** or at **+254790492820** or Jaramogi Ethical Review Committee on **+254733711659**

You will be given a copy of this form to keep for your records.

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Your Signature _____ **Date** _____

Your Name (printed) _____

Signature of person obtaining consent _____ **Date** _____

Printed name of person obtaining consent _____ **Date** _____

APPENDIX II: FOMU YA RITHA

MADA YA UTAFITI

Kuchunguza mtazamo wa wagonjwa na matibabu kuhusu kuunganishwa kwa kliniki ya huduma za ukimwi (HIV) na ile ya magonjwa yasiyo ambukizana (HCD).

UTANGULIZI

Napenda kuakualika kishiriki katika utafiti unaohusisha kuchunguza mawazo yako juu ya kuunganishwa kwa huduma za NCD na huduma ya HIV katika kliniki ya wagonjwa, ambayo itaongeza ujuzi kuhusiana na huduma za NCD na HIV katika kliniki. Jina langu ni Dr. Luete Richard: mwanafunzi wa udaktari katika chuo Kikuu cha Maseno; chini ya usimamizi wa washauri wangu Profesa Ogendo Stephen and na Dr. Ouma Kennedy Omondi.

Utaratibu wa utafiti: ikiwa umekubali kuwa katika utafiti huu, utapewa maswali ambayo yanahitaji kujibiwa kwa kuandika jibu sahihi. Utafiti utachukua muda wa miezi mitatu na kila mahojiano yatachukua muda wa dakika 15.

USIRI

Kushiriki kwako kuabi siri kati yako na mtafiti; na nukuu zozote kuhusu majibu yako yatakua kwa maneno fiche. Stakabathi zote za utafiti zitawekwa siri na mtafiti, na zitaharibiwa mwaka mmoja baada ya utafiti.

HATARI KWAKO

Kuna hatari tano zilizokubalika zinazohusiana na ushiriki katika tafiti za utafiti kama huu. Kimwili, kisaikolojia, kijamii, kiuchumi, na kisheria. Mtafiti anaona hatari ndogo kwa wale wanaochagua kushiriki katika utafiti huu. Hakuna hatari ya kimwili inayoonekana inayohusishwa na utafiti huu; hatari nyingine inaweza kujumuisha zifuatazo. Huenda ukawa na wasiwasi au hisia mbaya kama matokeo ya kujibu maswali waliyolizwa katika utafiti huu ikiwa unakabiliwa na majibu mabaya, unaweza kuchagua kuruka swali, kujiondoa kwenye utafiti, au

unaweza kuwasiliana na washauri wangu wa Kitivo (wasimamizi kwenye +254714053600 na +254722516098). Kamati ya ukaguzi ya maadili ya Jaramogi Odinga Odinga na Mahakama ya marejeo ya maadili +254733711659 au kamati ya Uchunguzi wa maadili ya chuo kikuu cha Maseno. Ikiwa unachagua kushiriki katika utafiti huu, unahimizwa kuweka ushirika wako katika utafiti huu na majibu yako ya siri. Mtafiti atashiriki usiri wako katika utafiti huo na ataharibu kumbukumbu za ushiriki wako mwaka mmoja baada ya kujifunza kumalizika.

FAIDA KWA WEWE

Hatukuona faida moja kwa moja kwako kuhusu ushiriki katika utafiti huu Zaidi ya ujuzi wa jumla kwamba unasaidia katika kuendeleza ujuzi kuhusiana na mada hii ya utafiti, na kumsaidia mtafiti katika kumaliza masters ya Udaktari katika mahitaji ya Dharura na Madawa ya Familia.

KUSHIRIKI UTAFITI NI HIARI

Kuchukua sehemu katika utafiti huu ni kikamilifu kwa kuwa, unaweza kuruka maswali yoyote ambayo hutaki kujibu. Ikiwa unachagua kushiriki au kuruka baadhi ya maswali, hayaathiri usimamizi wako wa sasa kwenye kliniki. Ikiwa unaamua kushiriki, wewe uko huru kujiondoa wakati wowote.

Ukiwa una mwaswali tafadhali uulize mwaswali yote unayo sasa. Ikiwa una maswali unaweza kuwasiliana na Dr. Luate Richard katika luaterichard@yahoo.com au +254790492820 au kamati ya mapito ya maadili ya Jaramogi +254733711659 utapewa nakala ya fomu hii ili uhifadhi kumbukumbuku zako.

Taaarifa ya kibali: nimesoma habari hapo juu, na nimepata majibu kwa maswali yote niliyoyauliza ninakubali kushiriki katika utafiti.

Sahihi yako _____ Tarehe _____

Jina lako (kuchapishwa) _____

Mbali na kukubali kushiriki, mimi pia nahitaji kuwa na kumbumbuku ya mahojiano

Saini yako _____ tarehe _____

Sahihi ya mtu kupata idhini _____ tarehe _____

Jina la kuchapishwa la mtu kupata kibali _____ tarehe _____

APPENDIX III: STUDY QUESTIONNAIRE FOR CLINICIANS
PERCEPTIONS OF PATIENTS AND CLINICIANS ON INTEGRATION OF HUMAN
IMMUNODEFICIENCY VIRUS AND NON- COMMUNICABLE DISEASES CARE IN
JARAMOGI OGINGA ODINGA TEACHING AND REFERRAL HOSPITAL, KISUMU-
KENYA

Instructions; Please put a tick in the box next to the answer of your choice or write in the space provided as the case may be;

DEMOGRAPHIC INFORMATION

1. Your Gender

Male

Female

2. Your Specialty

Nurse

Clinical Officer

Medical Officer

Consultant

Others; Specify.....

3. Clinic of operation

HIV clinic

NCDs clinic

CHALLENGES OF INTEGRATION OF HIV AND NCDS

4. HIV patients with co-existing NCDS are quite often seen in the Clinics
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree

5. HIV with NCDs co-existence imposes challenges to care of both HIV and NCDs in the Clinics.
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree

6. Integration of HIV and NCDs Care in poorly funded programs would weaken care for both NCDs and HIV patients
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree

7. Lack of national and county policies and Strategies would affect implementation of integration and ultimately care for both NCDs and HIV.
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree

BENEFITS OF INTEGRATION OF HIV AND NCDS

8. Integration of HIV and NCDS care in the HIV clinic would improve care for persons with HIV and NCDS co-existence
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree

9. Integration of NCDs AND HIV care could capitalize on the good foundations built with HIV treatment Scale-Up
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree

10. Integration may be more cost- effective as resources are shared for HIV and NCDs care
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree

11. Integration of HIV and NCDS care in the HIV clinic may disrupt service provision and potentially cause dissatisfaction among patients, particularly in the short term;
 1. Strongly Disagree
 2. Disagree
 3. Agree

4. Strongly Agree

WILLINGNESS TO WORK IN THE INTEGRATED HIV AND NCDS CLINIC

12. Would you participate in integrated clinics to offer care for patients with both HIV and NCDS.

- Definitely No
- Probably No
- Probably Yes
- Definitely Yes

APPENDIX IV: JARIDA LA UTAFITI KWA DAKTARI

Mtazamo wa wagonjwa na madkatar juu ya ushirikiano wa HIV NA MAGONJWA YASIYO

YA KUAMBUKIWA HAPO HOSPITALI YA Jaramogi Oginga Odinga –Kenya

Maagizo; Tafadhali weka alama kwenye sanduku kando ya jibu lako ama andika kwenye nafasi iliyotolewa

1. Jinsa yako
 - a. Kiume
 - b. Kike
2. Taaluma yako
 - a. Muuguzi
 - b. Afisa wa kliniki
 - c. Daktari
 - d. Daktari mtaalamu
 - e. Wengineo taja
3. Mahali pa kazi
 - a. Kliniki ya HIV
 - b. Kliniki ya magonwa sugu
 - c. Kliniki ingineyo: Taja
4. Wagonjwa wa HIV walio na magonjwa yasiyo ya kuambukizwa mara nyingi huonekana kwenye kliniki
 - a. Nakubali sana
 - b. Nakubali
 - c. Sikubaliani
 - d. Sikubaliani kabisa

5. Huwa changamoto kutibu wagonjwa wenye ukimwi na magonjwa yasio ambukizana kwa pamoja
- Nakubali sana
 - Nakubali
 - Sikubaliani
 - Sikubaliani kabisa
6. Kuunganishwa kwa huduma za HIV na ile ya magonjwa yasiyo ambukizana itaboresha huduma kwa wagonjwa wenye shida hizi kwa pamoja
- Nakubali sana
 - Nakubali
 - Sikubaliani
 - Sikubaliani kabisa
7. Kliniki jumushi kwa HIV na magonjwa yasiyo ya kuambukizwa itatoa huduma kamili kwa wagonjwa walio na HIV na magonjwa yasiyoweza kuambukiwa
- Hakika ndiyo
 - Labda ndiyo
 - Labda la
 - Hakika la
8. Ungependa kushiriki katika kliniki ya ushirikiano ili kutoa hudum kwa wagonjwa wenye wagonjwa yote ya HIV na yasiyo ya kuambukizwa
- Hakika ndiyo
 - Labda ndiyo
 - Labda la
 - Hakika la

APPENDIX V: STUDY QUESTIONNAIRE FOR PATIENTS
PERCEPTIONS OF PATIENTS AND CLINICIANS ON INTEGRATION OF HUMAN
IMMUNODEFICIENCY VIRUS AND NON- COMMUNICABLE DISEASES CARE IN
JARAMOGI OGINGA ODINGA TEACHING AND REFERRAL HOSPITAL, KISUMU-
KENYA

Instructions; Please put a tick in the box next to the answer of your choice or write in the space provided as the case may be;

DEMOGRAPHIC INFORMATION

1. Your Gender

- Male
- Female

Blood sugar	Repeat
Blood Pressure	Repeat
New.....	Known

2. Your Age

- ≤20
- 21 - 30
- 31 - 40
- 41 – 50
- 51 – 59
- ≥60

3. Which other chronic diseases do you have;

- Diabetes
- Hypertension
- Heart failure
- Others; Specify.....

BENEFITS OF INTEGRATION OF HIV AND NCDS

4. Combining of HIV and Other chronic diseases care in the HIV clinic would improve care for both HIV and the chronic diseases.
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree
5. Integration may be more cost- effective as resources are shared for HIV and NCDs care
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree
6. Integration may decrease frequency of clinic Visits for Patients with HIV and NCDs
 1. Strongly Disagree
 2. Disagree
 3. Agree
 4. Strongly Agree

CHALLENGES OF INTEGRATION OF HIV AND NCDS

7. Combining of HIV and other chronic diseases care in the HIV clinic would affect care for your HIV in the clinic.
 1. Strongly Disagree
 2. Disagree
 3. Agree

4. Strongly Agree
8. Integration of HIV and NCDs care would cause crowding in the integrated clinic and slow service delivery for patients

1. Strongly Disagree
2. Disagree
3. Agree
4. Strongly Agree

WILLINESS TO HAVE CARE IN THE INTEGRATED HIV AND NCDS CLINIC

9. Would you participate in this combined clinic rather than the separate clinics?

- Definitely Yes
- Probably Yes
- Probably No
- Definitely No

APPENDIX VI: JARIDA LA UTAFITI KWA WAGONJWA

Mtazamo wa wagonjwa na madaktari kuhusu ushirikiano wa HIV na matatizo yasiyo yakuambukizwa

Hapa hospitali ya Jaramogi Oginga Odinga Kenya

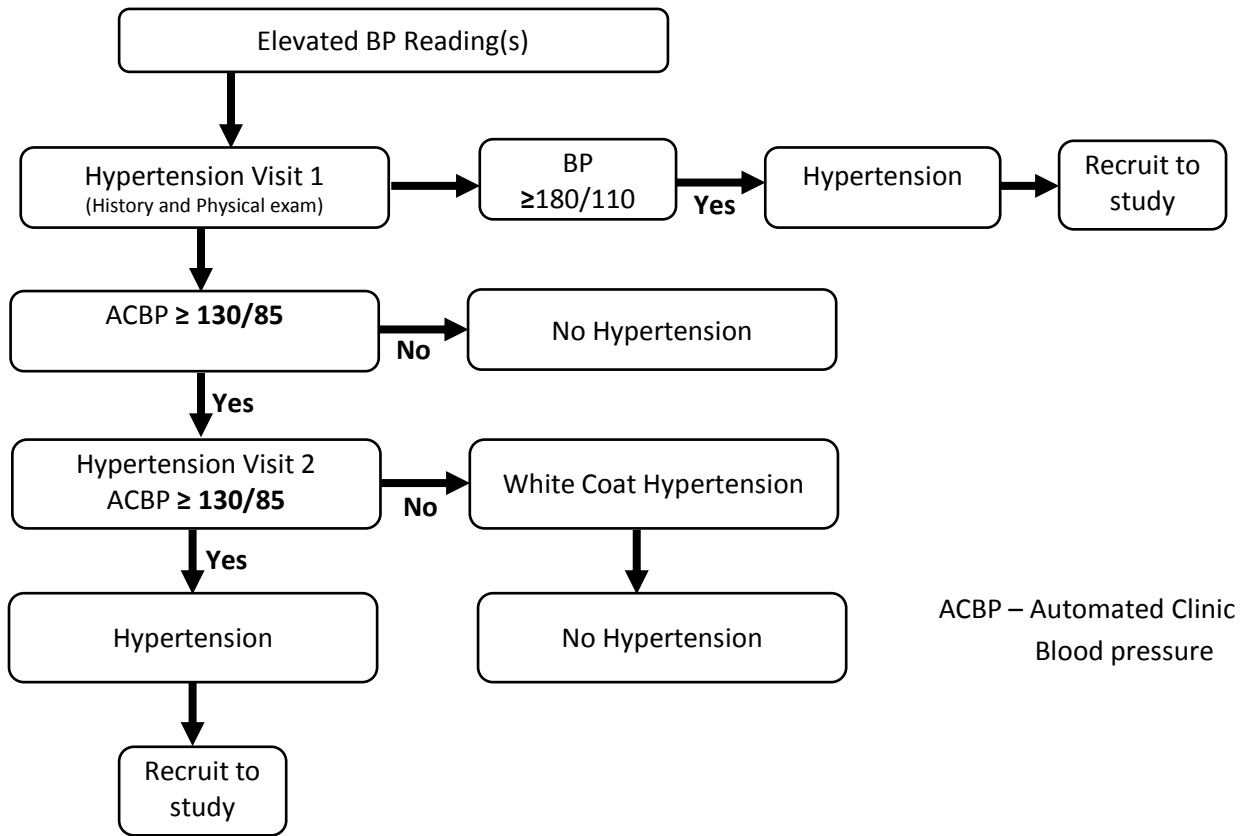
Maagizo: tafadhali weka alama kwenye sanduku kando ya jibu lako ama andika kwenye nafasi iliyotolewa

1. Jinsiyako
 - a. Kiume
 - b. kike
2. Umriwako
 - a. 18-67
 - b. 38-57
 - c. 58-67
 - d. 768
3. Je niugonjwa sugu gani mwingine unao
 - a. Kisukari
 - b. Shinikizo la damu
 - c. Moyo kushindwa kufanya kazi
 - d. Ingeyo, taja

4. Unahudhuria mara ngapi kliniki ya HIV
 - a. Kila wiki
 - b. Kila mwezi
 - c. Kila
 - d. Nadra
5. Je, niuzoefu gani wakuhudhuria kliniki hizi tofautu
 - a. Mbaya Zaidi
 - b. Mbaya
 - c. Mzuri
 - d. Mzuri sana
6. Kuhudhuria kliniki tofauti ni shida/changamoto kwako
 - a. Siotatizo lote
 - b. Tatizo ndogo
 - c. Tatizo wastani
 - d. Tatizo kubwa
7. Je unge hisije kama kliniki tofauti zingeunganishwa kama vile unaweza kuwa na huduma ya HIV na magonjwa mengine sugu katika klinik moja
 - a. Furaha sana
 - b. Furaha
 - c. Haifurahishi
 - d. Haifurahishi kabisa
8. Kuchanganya HIV na magonjwa sugu katika klinikiya HIV huimarisha huduma za magonjwa ya HIV na ileyasugu

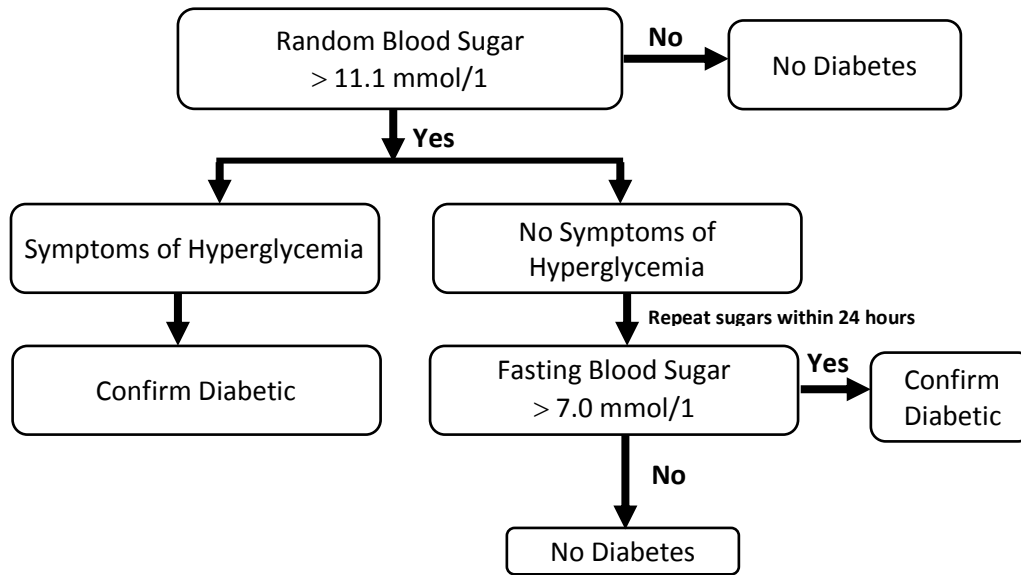
- a. Kukubali sana
 - b. Kubali
 - c. Sikubaliani
 - d. Sikubaliani kabisa
9. Ungependa kushiriki katika klinikihi ya pamoja badala ya kliniki tofauti
- a. Hakika ndiyo
 - b. Labda ndiyo
 - c. Labda la
 - d. Hakika la

**APPENDIX VII: CRITERIA FOR THE DIAGNOSIS OF HYPERTENSION AND
RECOMMENDATION FOR FOLLOW-UP**



Adopted from: 2018 ESC/ESH Guidelines for the management of arterial hypertension(Laurent et al., 2018)

APPENDIX VIII: SCREENING AND DIAGNOSIS OF DIABETES FLOW CHART



Adopted from: Kenyan National Clinical guideline for management of Diabetes Mellitus (Kenya) (MOH 2021)

APPENDIX IX: MASENO UNIVERSITY ETHICS REVIEW COMMITTEE APPROVAL



MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

Tel: +254 057 351 622 Ext: 3050
Fax: +254 057 351 221

Private Bag – 40105, Maseno, Kenya
Email: muerc-secretariate@maseno.ac.ke

FROM: Secretary - MUERC

DATE: 26th October, 2018

TO: Richard Luete
PG/MMED/SM/00008/2015
Department of Community Health and Family Medicine
School of Medicine, Maseno University
P. O. Box, Private Bag, Maseno, Kenya

REF: MSU/DRPI/MUERC/00617/18

RE: Perception of Patients and Clinicians on Integration of HIV and Non-Communicable Diseases in Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya. Proposal Reference Number MSU/DRPI/MUERC/00617/18

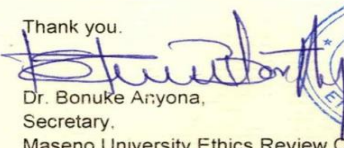
This is to inform you that the Maseno University Ethics Review Committee (MUERC) determined that the ethics issues raised at the initial review were adequately addressed in the revised proposal. Consequently, the study is granted approval for implementation effective this 26th day of October, 2018 for a period of one (1) year.

Please note that authorization to conduct this study will automatically expire on 25th October, 2019. If you plan to continue with the study beyond this date, please submit an application for continuation approval to the MUERC Secretariat by 15th September, 2019.

Approval for continuation of the study will be subject to successful submission of an annual progress report that is to reach the MUERC Secretariat by 15th September, 2019.

Please note that any unanticipated problems resulting from the conduct of this study must be reported to MUERC. You are required to submit any proposed changes to this study to MUERC for review and approval prior to initiation. Please advise MUERC when the study is completed or discontinued.

Thank you.


Dr. Bonuke Anyona,
Secretary,
Maseno University Ethics Review Committee.



Cc: Chairman,
Maseno University Ethics Review Committee.

MASENO UNIVERSITY IS ISO 9001:2008 CERTIFIED



**APPENDIX X: JARAMOGI ODINGA ODINGA TEACHING AND REFERRAL
HOSPITAL ETHICS REVIEW COMMITTEE APPROVAL**



Telegrams: "MEDICAL", Kisumu
Telephone: 057-2020801/2020803/2020321
Fax: 057-2024337
E-mail: ercjootrh@gmail.com
When replying please quote

**JARAMOGI ODINGA ODINGA TEACHING &
REFERRAL HOSPITAL**
P.O. BOX 849
KISUMU

ERC.IB/VOL.1/566

18th January, 2019

Ref:

Date.....

Richard Luete

Dear Richard,

**RE: FORMAL APPROVAL OF THE PROTOCOL STUDY ENTITLED:-
PERCEPTION OF PATIENTS AND CLINICIANS ON INTEGRATION OF HIV AND
NON-COMMUNICABLE DISEASES IN JARAMOGI ODINGA ODINGA TEACHING
AND REFERRAL HOSPITAL, KISUMU, KENYA.**

The JOOTRH ERC reviewed your protocol and found it ethically satisfactory. You are therefore permitted to commence your study immediately. Note that this approval is granted for a period of one year (w.e.f. 18th January, 2019 to 18th January, 2020). If it is necessary to proceed with this research beyond approved period, you will be required to apply for further extension to the committee.

Also note that you will be required to notify the committee of any protocol amendment(s), serious or unexpected outcomes related to the conduct of the study or termination for any reason.

In case the study site is JOOTRH, kindly report to the Chief Executive Officer before commencement of data collection.

Finally, note that you will also be required to share the findings of the study in both hard and soft copies upon completion.

The JOOTRH – IERC takes this opportunity to thank you for choosing the Institution and wishes you the best in your future endeavours.

Yours sincerely,

**WILBRODA N. MAKUNDA
SECRETARY- IERC
JOOTRH - KISUMU**



**APPENDIX XI: JARAMOGI ODINGA ODINGA TEACHING AND REFERRAL
HOSPITAL CHIEF EXECUTIVE LETTER OF PERMISSION FOR START OF DATA
COLLECTION**



**COUNTY GOVERNMENT OF KISUMU
DEPARTMENT OF HEALTH**

Telephone. 057-2020801/2020803/2020321	Jaramogi Oginga Odinga Teaching & Referral Hospital
Fax. 057-2024337	P.O. Box 849-40100
E-mail. medsupnpggh@yahoo.com	<u>KISUMU</u>
ceo@jaramogireferral.go.ke	
Website. www.jaramogireferral.go.ke	
<i>When replying please quote</i>	
Ref. GEN/.21A/V	23 RD JANUARY, 2019
Ref.	Date

Dear Dr. Luete Richard,

RE: PERMISSION TO COLLECT DATA.

Following the approval of protocol study "Perception of patients and clinicians on integration of HIV and non -communicable diseases in Jaramogi Oginga Odinga Teaching & Referral hospital, Kisumu, You are hereby permitted to proceed with the activity as from 1st February, 2019 to 31st January, 2020.

Yours sincerely,


DR. P.J. OKOTH
CHIEF EXECUTIVE OFFICER
JOOTRH - KISUMU

APPENDIX XII: MAP OF KISUMU COUNTY SHOWING JARAMOGI TEACHING AND REFERRAL HOSPITAL

