RÉSEAU RWANDAIS DES PERSONNES VIVANT AVEC LE VIH SIDA

R.R.P+

RAPID ASSESSMENT OF THE FEASIBILITY OF INTEGRATING NON-COMMUNICABLE DISEASES INTO THE HIV PEER EDUCATORS' PACKAGE AT THE COMMUNITY LEVEL

FINAL REPORT

Kigali, October 2024

Rwanda Biomedical Centre

Healthy People, Wealthy Nation

World Health Organization

UNAIDS

JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS

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The Rwanda Network of People Living with HIV (RRP+) extends its profound appreciation to all partners and stakeholders for their invaluable contributions toward the successful completion of this assessment. This assignment, focused on assessing the feasibility of integrating non-communicable disease (NCD) management into the HIV peer educator's (PE) model, has greatly benefited from the support of numerous key collaborators.

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RRP+ remains committed to building on these efforts to improve the quality and accessibility of healthcare for PLHIV and those affected by NCDs.

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EXECUTIVE SUMMARY

Background

Integrating NCD care, specifically for hypertension and diabetes, into the existing HIV peer education model presents a valuable opportunity to enhance health outcomes for PLHIV. Given the increased burden of NCDs among PLHIV, largely due to extended life expectancy achieved through antiretroviral therapy (ART), this assessment aimed to evaluate the feasibility, potential benefits, and challenges of this integration within Rwanda's health system. The primary objective was to assess the readiness and acceptability of HIV peer educators to incorporate NCD management into their roles. The assessment examined critical factors, including required resources, potential barriers, and key recommendations to support effective implementation.

Methodology

A mixed-methods approach was used, combining quantitative and qualitative data from surveys and interviews with PEs, healthcare providers (HCPs), program managers, field officers and PLHIV with NCD co-morbidities. Quantitative data were analyzed to assess trends in awareness, knowledge, and readiness among PEs, while qualitative data provided insights into perceptions and experiences of PEs, PLHIV, and HCPs regarding the integration of NCD management.

Key Findings

- **Willingness and Perceived Benefit:** All PEs expressed a willingness to take on additional responsibilities for NCD management, with 89.7% strongly agreeing that integrating NCD care would improve health outcomes for PLHIV.
- **Knowledge and Training Gaps:** While 100% of PEs were aware of NCDs, only 9.3% had received any formal training. Both PEs and HCPs emphasized the need for targeted training in NCD management, covering areas like blood pressure and glucose monitoring, medication adherence, and lifestyle counseling.
- **Resource and Storage Needs:** Essential resources identified included blood pressure monitors, glucometers, test strips, and other consumables. Sustainable funding and a reliable supply chain system are essential for maintaining these resources at the community level. Additionally, the assessment revealed a need for secure storage solutions for equipment and consumables.

- Community and HCP Support: Peer educators (PEs) reported high acceptability among their peers for integrating NCD care, with 97.2% of respondents indicating that peers would be receptive to receiving NCD care from PEs. However, some PLHIV expressed a preference for direct interaction with healthcare providers due to confidentiality concerns, highlighting the need for trust-building measures to support this integration.

Alongside the positive findings, several barriers and challenges must be addressed before implementation can proceed effectively.

Knowledge Gaps: Peer educators currently lack formal training in NCD management, with many feeling unprepared to address conditions like hypertension and diabetes. This knowledge gap limits their confidence and effectiveness in providing comprehensive support for NCDs alongside HIV care.

Synchronization of Services: The lack of synchronization of services between HIV and NCD services at health facilities creates challenges, as PLHIV often receive multi-month ART supplies, while NCD management may require monthly visits. Additionally, some PLHIV are uncomfortable disclosing their HIV status to non-HIV care providers, underscoring the need for integrated services within HIV clinics to ensure confidentiality and streamline care.

Materials and Equipment: The absence of essential equipment, such as blood pressure monitors, would limit PEs' ability to effectively monitor and manage NCDs within the community.

Recommendations

To Rwanda Biomedical Centre

- Training and Capacity Building: Establish comprehensive training programs for PEs focusing on NCD management skills, risk factors, and adherence counseling. Additionally, training HCPs in HIV clinics on NCD care would support a collaborative model.
- Synchronization of services at Health Facilities: Incorporate NCD services within HIV clinics to align care schedules for PLHIV, reduce logistical burdens, and protect patient confidentiality. Policy-level support is essential to facilitate this integration.

To Health Facilities

- Mentorship and supervision: Establish regular mentorship and supervision sessions to provide continuous guidance, skill enhancement, and reinforcement of best practices in NCD care for PEs.

To Rwanda Network of PLHIV

- **Reducing PLHIV Reluctance**
  - Share success stories and testimonials to build trust in PEs and highlight the benefits of integrated care.
  - Educate PEs on the importance of confidentiality to strengthen trust and peer relationships.
- **Provision of essential equipment:** Ensure the availability of critical NCD management tools such as blood pressure monitors, glucometers, and consumables. Developing a sustainable supply chain and financing model is crucial for long-term success.
- **Monitoring and Evaluation:** Develop a monitoring and evaluation framework to track the implementation and outcomes of the integrated model, avoiding redundant record-keeping and promoting efficient data management.

Conclusion: This assessment highlights the feasibility and benefits of integrating NCD care into Rwanda's HIV peer education model, emphasizing that effective implementation will require targeted training, resource allocation, confidentiality measures, and alignment with community and facility-level services within a supportive policy framework

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LIST OF ABBREVIATIONS

ART	Anti-Retroviral Therapy
ARV	Antiretroviral
ASRH	Adolescent Sexual Reproductive Health
CHWs	Community Health Workers
CVD	Cardiovascular Disease
DSDM	Differentiated Service Delivery Model
FGD	Focus Group Discussion
HFs	Health Facilities
HIV	Human Immune Deficiency Virus
HTS	HIV testing and counseling services
ICCM	Integrated community case management
KII	Key Informant Interview
LMICs	Low and middle- income Countries
MMD	Multi-Month Dispensing
NCDs	Non-Communicable Diseases
PE	Peer Educator
PLHIV	People living with Human Immune Deficiency Virus
PMTCT	Prevention Mother to Child transmission
RBC	Rwanda Biomedical Centre
RNEC	Rwanda National Ethics committee
RRP+	Réseau Rwandais des Personnes Vivant avec le VIH
SAA	Sub-Saharan Africa
STIs	Sexually Transmitted infections
TB	Tuberculosis

LIST OF INVESTIGATORS

NAMES	ORGANIZATION	ROLE
Deo Mutambuka	Rwanda Network of PLHIV/ Executive secretary	Lead assessment design, Protocol development, literature search , data analysis and interpretation, and dissemination of result
Dr.Gallican N Rwibwasira	RBC/HIV, STIs, and OBBI Division Manager	Lead assessment design, Protocol development, literature search , data analysis and interpretation, and dissemination of result
Dr.Francois Uwinkindi	RBC/NCD Division Manager	Protocol review, data analysis and interpretation.
Dr SimeonTuyishime	RBC/HIV care and treatment Director	Protocol review, data analysis and interpretation.
Dr.Muhayimpundu Ribakare	WHO/Public Health Officer-HIV,STIs,TB and Hepatitis programs	Protocol review, data analysis and interpretation.
Andrew Gasozi	UNAIDS/Community Support Advisor	Protocol review, data analysis and interpretation.
Benjamin BIZIMANA	UNAIDS/Strategic Information Officer	Protocol review, data analysis and interpretation.
Kamali Innocent	Consultant	Technical lead and coordination of the assessment

Principal investigators: They led the overall coordination of the assessment; provide close technical assistance and direct support to the implementation process. They also ensured the integrity of the data collected and findings reported.

Co-investigators: Co-investigators supported the implementation of the assessment in different areas: Data collection, data analysis, interpretation of the results and dissemination.

1. 1.Background

The introduction of ART has significantly increased the life expectancy of PLHIV. However, as they age, their risk of developing NCDs rises1. PLHIV on ART who achieve virological suppression are more likely to die from NCD-related causes than from HIV itself2. This trend is especially evident in Sub-Saharan Africa (SSA), where HIV high prevalence coincides with a rising burden of NCD3.Urbanization and lifestyle shifts, such as an increased sedentary behavior, poor dietary habits, tobacco and alcohol use, and environmental pollution, have further exacerbated modifiable risk factors for NCDs 4. For PLHIV, the side effects of ART compound these risks, leading to a higher NCD incidence 5.Researches indicate that PLHIV in SSA experience a disproportionately high burden of NCDs such as cardiovascular disease (CVD), cervical cancer among women, hypertension, and diabetes compared to their HIV-negative counterparts3,6–8.

In Rwanda, hypertension and diabetes are the most prevalent NCDs among adults aged 18 to 69. Hypertension affects 16.8% of the population, an increase from 2013, though awareness has improved since then. Despite growing awareness, 52.1% of participants in the 2022 STEPS survey reported never having their blood pressure measured a notable improvement from nearly 80% in the 2012-2013 survey, though still a concern. Diabetes affects 3% of the population, based on fasting blood glucose levels or the use of medication for elevated blood glucose, yet 88.5% of respondents in 2022 had never been tested for blood sugar levels9, highlighting a gap in early detection and management.

Among Rwandan PLHIV, the prevalence of hypertension is even higher, within rates of 22% at Kigali Teaching Hospital10, 24.7% at Byumba District Hospital11, and 29.8% at Kigeme Hospital12. Diabetes prevalence among PLHIV is also higher, at 9.9%10. In addition to being the most prevalent NCDs, hypertension and diabetes have also been proven manageable at the community level, making it suitable for integration into community-based care through community healthcare workers(CHWS), or PEs13. These findings underscore the need to explore the feasibility of integrating hypertension and diabetes management into the existing HIV peer education model to complement the services already provided by health facilities.

The adoption of the "Treat All" strategy, which guarantees ART access to all PLHIV regardless of CD4 count, has significantly increased life expectancy among PLHIV in SSA. However, as individuals live longer, the burden of NCDs, such as hypertension, diabetes, and other chronic conditions, also grows. The number of older PLHIV is projected to triple by 204014, emphasizing the need for integrated healthcare services that address both HIV and NCDs to support the well-being of an aging PLHIV population.

Following its implementation, approximately 17,000 PLHIV in Rwanda began their lifelong HIV treatment progressively15. To address the challenges at health facilities (HFs), particularly those with high patient volumes on ART, Rwanda's national HIV program adopted the Differentiated Service Delivery Model (DSDM), aimed at reducing unnecessary clinic visits and alleviating HF burdens by modifying service delivery 16.This model, which includes multi-month dispensing (MMD) of antiretrovirals, has improved care efficiency. Clinically stable patients benefit from reduced clinic visits, cutting travel costs and saving time. Initially offering a three-month dispensing interval (3MMD) in 2018, the program expanded to a six-month dispensing interval (6MMD) in 2021, further enhancing patient convenience and treatment adherence. Currently, 46% of Rwanda's 200,000 PLHIV enrolled in care are on 6MMD, 30% on 3MMD, and 24% on one-month dispensing17.Despite these advancements, the model excludes integrated NCD management, posing significant challenges for PLHIV with NCD comorbidities who still require monthly health facility visits for NCD care. Integrating NCD care into the existing HIV services into HIV care model would improve coverage and help manage the growing problem of multimorbidity among PLHIV, leading to more comprehensive and efficient care.18.

In the current HIV management, community engagement through peer education plays a pivotal role in supporting ART adherence and retention in care. PEs, who are PLHIV themselves, offer practical and psychosocial support to others, facilitating an environment of shared experiences and mutual understanding. PEs are selected based on criteria established by the HIV program and HCP and are responsible for organizing monthly support groups, conducting home visits, facilitating referrals, and linking peers to community services19. With the implementation of MMD, stable PLHIV can spend more time in the community without needing frequent HF visits, increasing the role of PEs in maintaining ART adherence. This approach not only strengthens HIV care but also offers a platform for integrating NCD management.

In Rwanda, integrated care models that combine sexual and reproductive health (SRH) services with HIV care have proven feasible and effective, especially for adolescents and young adults. These models provide holistic healthcare by offering services such as family planning, STI prevention, and HIV treatment, which improve health outcomes and reduce stigma. Integrating SRH into HIV care has significantly enhanced access to services and encouraged better health-seeking behaviors among young people. By incorporating antenatal care (ANC) and prevention of mother-to-child transmission (PMTCT) into HIV services, Rwanda has streamlined the delivery of essential healthcare, facilitating easier access for PLHIV to a broader range of services during their clinic visits.

This approach has also strengthened continuity of care, increased contraceptive use, and improved STI management. The Health Sector Strategic Plan reinforces this by prioritizing family planning and adolescent SRH services19.

In 2022-2023, healthcare providers (HCPs) at facility-level received training to strengthen connections between PLHIV and family planning (FP) services, advancing the integration of HIV with broader healthcare initiatives20. The Ministry of Health, through the Rwanda Biomedical Centre (RBC), has also developed youth-friendly health services to address the unique needs of young people. This initiative, particularly beneficial for adolescent girls, facilitates access to HIV testing, treatment, family planning, and sexually transmitted infections (STI) prevention and management in a supportive environment21. Additionally, the HIV program has incorporated some NCD-related services, such as routine screening, vital sign monitoring, and glycemic control for PLHIV on DTG-based regimens. However, HIV patients with NCDs continue to be managed through two separate care programs for their conditions. National guidelines now advocate for the integration of NCD care within HIV clinics to address the shifting disease burden and support a more comprehensive approach to chronic disease management, though practical implementation still lags behind these plans.

Rwanda has effectively demonstrated the feasibility of using Community Health Workers (CHWs) in delivering essential services at the village level for decades. CHWs support maternal health, manage childhood illnesses, malaria and carry out promotional and preventive activities22–25. Efforts are ongoing to expand the polyvalent CHW model by integrating NCD care; however, CHWs may face challenges in meeting the specific needs of PLHIV due to HIV-related stigma and discrimination. Integrating NCD care within the established HIV peer education model could address this gap, enabling PEs to support both HIV and NCD management in their communities while fostering trust and providing stigma-sensitive care26,27. The peer education system, which operates across all public health facilities, accredited to provide HIV services and includes over 5,000 PEs, plays a key role in HIV management. Each PE serves 40 to 50 clients within a specific geographical area. In addition to general PEs, there are specialized PEs who focus on specific groups with unique needs, such as key populations and adolescents. This tailored approach ensures that diverse groups receive the targeted support they require19. By incorporating NCD management into the existing roles of HIV PEs, it would be possible to significantly enhance the health outcomes of PLHIV through improved access to comprehensive care.

This assessment aims to explore the feasibility of expanding the scope of community-based HIV peer education to include NCD services, leveraging the established HIV community approach to better address the dual burden of HIV and NCDs among PLHIV.

2. Objectives

2.1. Main objective

To evaluate the feasibility of integrating non-communicable disease (NCD) management into the existing HIV PEs' model and to determine the essential service package at the community level.

2.2. Specific Objectives

- Assess the knowledge and capacity of HIV PEs in managing hypertension and diabetes.
- Explore the perspectives of PLHIV on integrating diabetes and hypertension management into HIV PE's model.
- Analyze the benefits and challenges of integrating HIV and NCD services into the PEs' model
- Define a comprehensive NCD service package, including prevention, screening, that can be integrated into the existing HIV peer education model.
- Identify key factors for successfully implementing the integration of NCD services into the HIV peer education model.

3. Methodology

3.1. Assessment Design

This assessment employed a mixed-methods approach, integrating both quantitative and qualitative methods to comprehensively evaluate the potential integration of an NCD service package into the HIV peer education model.

Quantitative Method

A cross-sectional survey was conducted with HIV PEs to assess their knowledge, capacity, and readiness in managing hypertension and diabetes. The survey utilized structured questionnaire designed to evaluate their knowledge/awareness, skills, and perceived confidence in addressing NCDs within their roles. The quantitative data obtained from this survey was analyzed using descriptive statistics to identify trends, knowledge gaps, and areas for capacity building. The results shall inform targeted interventions aimed at enhancing PEs' ability to manage NCDs alongside their current HIV-related responsibilities.

Qualitative Method

The quantitative phase was complemented by a qualitative component involving Focus Group Discussions (FGDs) with PLHIV who have comorbid NCDs. These FGDs were conducted at three selected health facilities, Mulindi (Kirehe),Biryogo and Muhoza Health Centres(HC), with each group consisting of 6-8 PLHIV. The objective was to gather insights into their perceptions and attitudes toward integrating NCD care into the peer education model.

In addition, in-depth interviews were carried out with key informants, including HCP from both HIV and NCD clinics and program managers responsible for NCD and HIV services and RRP+ staff coordinating Peer education activities. Each selected facility involved two HCPs, one from the HIV clinic and one from the NCD clinic. These interviews explored the benefits, challenges, and resources needed for effective integration and sought input on the specific components of the NCD service package that could be incorporated into the peer education model. This input is essential for developing a comprehensive NCD service package, encompassing prevention, screening, and management strategies tailored to community-level implementation. The qualitative data from FGDs and interviews were analyzed in thematic analysis to uncover key themes and actionable insights, which will guide the successful integration of NCD services into the existing HIV peer education model. Interviews were conducted between 30 and 45 minutes

3.2. Assessment Setting

This assessment was conducted in four provinces and Kigali city. One district per province and one public health facility with an active peer education program in each district were purposively selected for the assessment. The selection included rural and urban health facilities. In this context, an urban health facility is defined as one located either in Kigali city or in one of the secondary cities within the provinces, as specified in the Urbanization and Rural Settlement Sector Strategic Plan 2018-2012428.

3.3. Assessment-Target participants

The target population for this assessment comprised of PLHIV who are registered as HIV PEs. For the purposes of this assessment, a PE is defined as an individual living with HIV who provides education, support, and counseling to their peers within the framework of HIV prevention and management guidelines19. Additionally, the assessment included PLHIV living with NCDs to gather their perspectives on integrating NCD management into the peer education model (Appendix 5). Key informants from the RBC and RRP+, along with HCPs, were also included in the assessment to offer insights from both programmatic and clinical perspectives (Appendix 6).

3.4. Ethical Considerations

All assessment participants were 18 years or older, able to communicate in Kinyarwanda, and either recognized as HIV PEs or enrolled in both the HIV and NCD clinics at the health center. Participants were able and willing to provide informed consent prior to participating in the assessment. Those who agreed to participate were asked to provide oral consent before the interview. Interviewers informed participants that they had the right to accept or decline the interview, withdraw at any time, and that their decision will not affect their access to healthcare services at the facility.

Confidentiality of the collected data was maintained at every stage. Participants' names did not appear on questionnaires. However, interviewers kept a list of names and contact details for financial purposes, as participants received a transport reimbursement of 5,000 RWF. These lists are securely stored at the RRP+ offices in a locked cabinet, accessible only to the authorized research team.

All collected data were stored on password-protected computers and in a secure Dropbox repository, accessible only to the assessment team. Before fieldwork began, data collectors received a training on the assessment protocol and related-tools such as interview guide, and principles of research involving human subjects. All interviewers were fluent in Kinyarwanda and experienced in conducting both quantitative and qualitative research with PLHIV. Interviews were conducted at the health facility in a private and confidential setting, and audio-recorded to ensure accurate data collection.

3.5. Exclusion criteria

The assessment excluded PLHIV who were under 18 years old, unwilling to participate, or have disabilities such as hearing or/and vision impairments.

3.6. Sampling and Data Collection

Prior to data collection, the heads of the selected health facilities were contacted to obtain the names and contact information of nurses working in the HIV and NCD clinics. These nurses were responsible for reaching out to both HIV PEs operating within the selected facilities and PLHIV who also have NCDs and meet the study's inclusion criteria. Participants were identified and invited at least one day before their scheduled interviews, through phone calls either by the nurses or via PEs. All PEs from the selected HF were included in the assessment, except those who could not be available.

For the FGDs involving PLHIV with NCDs, nurses identified and invited 8 participants from each facility who meet the specific inclusion criteria. During these FGDS, participants' responses and interactions were audio-recorded to capture detailed qualitative data. These recordings were transcribed verbatim to ensure accurate documentation of all spoken content. The transcriptions were reviewed and cross-checked for accuracy before being coded for thematic analysis.
Data from PEs were collected electronically using the cloud-based survey system KOBO Toolbox. This platform allows responses to be directly entered and uploaded into tablets, ensuring accurate and efficient data management.

3.7. Data Analysis

Quantitative data collected from PEs through the KOBO Toolbox was exported for analysis. Descriptive statistics, including frequencies, percentages, and means, were used to summarize the responses and identify trends related to the knowledge, capacity, and readiness of HIV PEs. The analysis was conducted using STATA version 15 (StataCorp LP, College Station, TX, USA).

For the qualitative data gathered FGDs and in-depth interviews, a thematic analysis approach was l employed. This involves coding the collected information to identify key themes and patterns related to the feasibility and acceptance of integrating NCD services within the PEs' model. These themes were then organized into key domains, which derived from existing programmatic knowledge and refined through repeated reading and interpretation of the data during the early stages of analysis. This process aims to provide a structured and meaningful understanding of the data, highlighting crucial insights that can inform the development and implementation of an integrated NCD service package within the HIV peer education framework. The findings were synthesized to develop recommendations for the integration of NCD services into the HIV PEs' package, ensuring the interventions are community-accepted and effectively address the needs of PLHIV with NCDs.

2.1. Introduction

This section provides a detailed analysis of the feasibility of integrating NCD management into the existing HIV PEs' model at the community level. Key findings are presented from both quantitative and qualitative data, offering insights into the capacity and readiness of HIV PEs to manage NCDs such as hypertension and diabetes. The section also explores the perspectives of PLHIV on receiving integrated services, as well as identifying the benefits and challenges associated with this integration. Additionally, the analysis highlights the resources, training needs, and potential barriers identified by PEs, HCP, and program managers, field officers, providing a comprehensive understanding of the feasibility and potential impact of integrating NCD services into the peer education model.

2.2. Demographic Characteristics of peer educators

The table below presents demographic characteristics of 107 HIV PEs, with a mean age of 48.9 years, and 67.3% of participants aged over 45. The median is 49, which is very close to the mean, suggesting a relatively symmetric distribution. The majority are female (66.4%), and 58.9% are married or cohabiting. Educational levels vary, with 50.5% having completed primary education, and 11.2% having no formal education. Most participants work as farmers (34.6%) or in private small business (21.5%), while 18.7% are unemployed. In terms of experience, 65.4% have over 5 years of experience as PEs, while only 4.7% have less than a year

Table 1. Demographic characteristics

Variable	N	%
Total	**107**	**100**
	Mean = 48.9 (±9.1), Median= 49, Range :	
Age	**23-64**	
<=45 years	35	32.7
>45 years	72	67.3
Sex		
Female	71	66.4
Male	36	33.6
Marital status		
Divorced/Separated/widowed	28	26.1
Married/Cohabiting	63	58.9
Single	16	15
Completed level of education		
None	12	11.2
Primary	54	50.5
9-Year Basic Education	28	26.2
Secondary school	9	8.4
University/Postgraduate	4	3.7
Occupation		
Unemployed	20	18.7
Employed (monthly salary)	10	9.3
Farmer	37	34.6
Private Business	23	21.5
Other (Specify)	17	15.9
Years of Experience as an HIV PE		
Less than 1 year	5	4.7
1–3 years	20	18.7
3–5 years	12	11.2
5 years+	70	65.4

2.3. Confidence, Knowledge and HIV-related Training information

This section highlights the information about the confidence, knowledge, and training of HIV PEs in supporting their peers.

The table below highlights that most HIV PEs (74.8%) reported feeling "very confident" in their ability to support their peers, with 67.3% believing they have sufficient knowledge for their role. Nearly all (94.4%) have received training, with the majority (62.4%) attending 2-4 sessions.

However, a minority (28%) feel they need more knowledge, and 5.6% have not received any training. Overall, the data indicates that PEs are generally well prepared, though some require additional education and confidence building.

Table 2. Levels of Confidence, Knowledge, and Training among HIV peer educators

	N	%
Total	**107**	**100**
Self-reported levels of confidence of PEs in supporting their peers		
Very confident	80	74.8
Confident	24	22.4
Somewhat confident	2	1.9
Not confident	1	0.9
Do you feel you have sufficient knowledge about HIV to effectively support your peers in your role as a PE?		
A little	5	4.7
I need to learn more	30	28
Yes	72	67.3
Have you received any training on HIV since becoming aPE?		
No	6	5.6
Yes	101	94.4
How many training sessions related to your role as aPE		
1 training session	26	25.7
2–4 training sessions	63	62.4
5 and more	12	11.9

2.4. Awareness, Training and Knowledge about NCD among peer educators

2.4.1. Awareness and Training

The table 4 shows that all 107 participants (100%) have heard of NCDs, with HCPs being the primary information source (83.2%). Other significant channels include media (54.2%); PEs (PEs) or support groups (21.5%), and community outreach (19.6%). However, only 6.6% of participants have received formal training in NCD management, and those trained are typically PEs who also serve as CHWs. Among these, 80% attended only a single training session, underscoring a gap in comprehensive and ongoing training. This suggests that while awareness of NCDs is high among HIV PEs, formal training in NCD management remains very limited.

Table 3. NCD awareness and Training among PEs

Variable	N	%
Total	**107**	**100**
Have you ever heard of NCDs?		
Yes	107	100
Through which channel did you hear about NCDs?*		
Healthcare provider	89	83.2
Media (TV, radio, etc.)	58	54.2
PEs or support group	23	21.5
Community outreach	21	19.6
Training or workshop	15	14.0
Other	7	6.5
Have you ever received formal training on how to manage NCDs?		
No	100	93.4
Yes	7	6.6
If trained, how many training sessions related to NCD care have you attend**		
1 Training session	5	80
2–3 Training session	2	20

2.4.2. Knowledge about Hypertension

The findings reveal that a significant portion of HIV PEs lack essential knowledge about hypertension. Notably, 36.5% of respondents indicated that they did not know any risk factors for hypertension. Similarly, 39.3% were unaware of common symptoms, and a majority (63.6%) did not know the potential complications of uncontrolled hypertension. Additionally, 26.2% were unaware of any lifestyle changes to help manage hypertension.

Among those who had knowledge, 48.6% recognized stress as the common risk factor, while high salt intake (39.3%) and excessive alcohol consumption (17.8%) were less frequently identified. Dizziness was the most commonly known symptom (49.5%), with severe headache (31.8%) also noted. However, fewer respondents identified serious symptoms like shortness of breath or blurred vision. When it came to managing hypertension, 44.9% understood that reducing salt intake is important, and 35.5% recognized the need to limit alcohol consumption, while 24.3% mentioned regular exercise.

In terms of curability, 48.6% correctly understood that hypertension cannot be cured, however 35.5% believed it could be, and 15.9% were unsure. Overall, there are substantial gaps in knowledge, particularly regarding risk factors, symptoms, complications, and management strategies for hypertension.

Table 4. PEs' knowledge about Hypertension risk factors, symptoms and life style modifications

Total	107	100
Knowledge of Risk Factors for Hypertension [a]		
Stress	52	48.6
High salt intake	42	39.3
I Don't know	39	36.5
Excessive alcohol consumption	19	17.8
Age	17	15.9
Obesity	15	14.0
Lack of physical activity	13	12.2
Family history of hypertension	1	0.9
Common symptoms for hypertension [b]		
Dizziness	53	49.5
I don't know	42	39.3
Severe headache	34	31.8
Shortness of breath	7	6.5
Blurred or double vision	6	5.6
Other	2	1.9
Potential complications of uncontrolled hypertension [c]		
I Don't know	68	63.6
Stroke	12	11.2
Heart attack	11	10.3
Kidney failure	1	0.9
Vision loss	9	8.4
Common lifestyle changes to help manage hypertension [d]		
Reduce salt intake	48	44.9
Limit alcohol consumption	38	35.5
I Don't know	28	26.2
Exercise regularly	26	24.3
Monitor blood pressure regularly	18	16.8
Maintain a healthy weight	11	10.3
Quit smoking	12	11.2
Others	8	7.5
Can hypertension be cured		
No	52	48.6
Yes	38	35.5
I don't know	17	15.9

[a] *PEs could report more than one risk factor*
[b] *PEs could report more than one symptom*
[c] *PEs could report more than one complication*
[d] *PEs could report more than one lifestyle change*

2.4.3. Knowledge about Diabetes

The results reveal significant knowledge gaps among HIV PEs regarding diabetes. Notably, 23.4% of respondents did not know any risk factors for diabetes, and 31.8% were unaware of common symptoms. A majority (64.5%) did not know the potential complications of the condition, and 29.0% were unaware of any lifestyle changes to help manage diabetes. Additionally, 13.1% were unsure whether diabetes could be cured.

Among those with knowledge, 75.7% identified an unhealthy diet as a common risk factor, while frequent urination (48.6%) and excessive thirst (29%) were the most recognized symptoms. Vision loss (11.2%) and kidney damage (5.6%) were the most commonly noted complications. In terms of management, 62.6% recognized healthy eating as an important lifestyle change, while 24.3% acknowledged blood sugar monitoring, and 22.4% highlighted regular physical activity. Lastly, 71.0% correctly understood that diabetes could not be cured. Overall, these findings underscore the need for further education on diabetes management, symptoms, and complications.

Table 5. PEs' knowledge about Diabetes risk factors, symptoms and life style modifications

Variable	N	%
Total	**107**	**100.0**
Common risk factors for diabetes [a]		
Unhealthy diet (high in sugar and processed foods)	81	75.7
I Don't know	25	23.4
Physical inactivity	12	11.2
Family history of diabetes	8	7.5
Overweight or obesity	8	7.5
High blood pressure(hypertension)	1	0.9
Other, specify:	0	0.0
Common symptoms of diabetes [b]		
Frequent urination (polyuria)	52	48.6
I Don't know	34	31.8
Excessive thirst (polydipsia)	31	29.0
Unexplained weight loss	19	17.8
Increased hunger (polyphagia)	10	9.4
Blurred vision	7	6.5
Other specify	3	2.8
Potential complications for diabetes [c]		
I don't know	69	64.5
Vision loss	12	11.2
Kidney damage	6	5.6
Stroke	2	1.9
Heart attack	1	0.9
Common lifestyle changes to help manage diabetes [d]		
Healthy Eating	67	62.6
I don't know	31	29.0
Blood Sugar Monitoring	26	24.3
Regular Physical Activity	24	22.4
Weight Management	5	4.7
Other	4	3.7
Can diabetes be cured		
No	76	71.0
Yes	17	15.9
I don't know	14	13.1

[a] *PEs could report more than one risk factor*
[b] *PEs could report more than one symptom*
[c] *PEs could report more than one complication*
[d] *PEs could report more than one lifestyle change*

Qualitative insights from FGDs and interviews with HCP echoed these findings. Respondents emphasized the lack of in-depth knowledge among PEs about NCDs management, which they identified as a critical barrier to integrating NCD services into the existing HIV peer education model. Both HCP and PLHIV with comorbid NCDs expressed that without comprehensive training, the integration effort might struggle to achieve its intended impact. This knowledge gap underscores the critical need for training PEs in NCD management, particularly in conditions like hypertension and diabetes. ***"The primary challenge that PEs will encounter is the perception among their peers that they lack sufficient skills and knowledge about non-communicable diseases" -KI Mulindi HC.*** Another added, ***"PEs are essential in the PLHIV community, but their limited knowledge of NCDs could undermine their ability to effectively support this new initiative" KI Musambira HC***

2.5. NCD Integration into HIV Peer Education model

This section presents the perspectives of HIV PEs, HCP and PLHIV with NCD comorbid on the integration of NCD management, such as diabetes and hypertension, into the existing peer educators' roles. It highlights their willingness to support the integration, their beliefs about the impact on health outcomes, and potential challenges they foresee. Additionally, the need for further training and resources to effectively manage NCD care is emphasized.

Interviews with HCPs, highlighted the potential for integrating NCD-related services into the PEs' package, as PEs have already proven successful in supporting their peers, as PLHIV tend to be more open with them. All respondents believe that this integration will enhance the quality of care for PLHIV, as it will help reduce dropouts from NCD care by providing consistent adherence support and assisting PLHIV in managing both HIV and NCDs.

The table below highlights HIV PEs' perspectives on integrating NCD management, specifically for conditions like diabetes and hypertension, into their current roles. All respondents expressed a willingness to support this integration; with the majority (89.7%) strongly believing it would improve health outcomes for PLHIV. Most PEs (87.9%) do not view this integration as a burden, while 10.3% believe it will be, and 1.9% are unsure. Almost all respondents (99.1%) feel they will need additional training to effectively support NCD care. Identified challenges include insufficient training (81.3%), lack of materials (72.0%), and a lack of motivation or incentives (29.0%). Only 15.9% cited increased workload as a challenge, with minimal concerns over stigma (1.9%).

Despite the challenges, all respondents feel capable of balancing their current responsibilities with the additional task of managing NCD services. Moreover, 97.2% believe that PLHIV in their community would be open to receiving support for both HIV and NCD management, with only 1.9% unsure and 0.9% disagreeing.

Table 6. HIV peer educators' perceptions on the integration of NCD management into their roles

Variable	N	%
Total	**107**	**100**
Willingness to support the integration of NCD		
Yes	107	100
Integrating NCD care would improve PLHIV health outcomes		
Strongly agree	96	89.7
Agree	11	10.3
Integrating NCD care to PEs' role will be a burden		
No	94	87.9
Yes	11	10.3
Unsure	2	1.9
Need for training to effectively support NCD care		
Yes	106	99.1
No	1	0.9
Challenges in integrating NCD services into HIV PEs*		
Insufficient/Lack of training	87	81.3
Lack of materials	77	72.0
Lack of motivation or incentives	31	29.0
Increased workload/responsibility	17	15.9
Stigma associated with HIV/ NCDs	2	1.9
I Don't know	2	1.9
Able to balance current responsibilities and NCD integration		
Yes	107	100.0
PLHIV would be open to receiving support from PEs for both HIV and NCD management		
Yes	104	97.2
Unsure	2	1.9
No	1	0.9

PEs could report more than one challenge

The confidence in PEs was echoed by HCPs and PLHIV with NCDs expressed strong support for integrating NCD services into PEs' role, reinforcing the enthusiasm and willingness of PEs to take on this expanded responsibility. FGDs highlighted high levels of satisfaction with the emotional support and adherence assistance provided by PEs, with many PLHIV participants emphasizing the trust and confidence they place in their PEs. This trust is further validated by HCPs, who noted the PEs' dedication and commitment to their role. One key informant commented, ***"Since PEs are the ones who follow their PLHIV peers on a daily basis, it would be beneficial to integrate NCD services, especially as PLHIV tend to open up to them more than they do with nurses." KII- Muhoza HC.***

PLHIV with NCD participant in a FGD also shared personal testimony underscoring the value of PEs and this integration" ***I really appreciate the services that PEs provide to me. I lost my leg due to diabetes. They reach out to me regularly, when I need them and I am grateful for their support." — R2-FGD, Biryogo HC"***

Another FGD participant, stated" ***Last week, I experienced extremely low blood sugar levels without realizing it, and I fainted. Although I own a glucometer, I struggled to use it correctly in the moment. If my PE had been able to assist me with this, it could have made a significant difference. I nearly lost my life, and I had to be taken to the district hospital"(R5 FGD-Mulindi HC***

These experiences illustrate the potential life-saving impact of expanding PEs' responsibilities to include NCD management.

2.6. Resources and Storage Space

This section examines the specific resources and support that HIV PEs require to effectively manage NCDs, (diabetes and hypertension), within their communities. It also explores their capacity to securely store medical equipment in their homes. The responses highlight the critical need for equipment, educational materials, and professional guidance, as well as the challenges related to safe storage of medical supplies. Understanding these needs is essential for successful integration of NCD management into their roles.

The table below highlights the specific resources and support HIV PEs need to effectively manage NCDs. A vast majority (96.3%) indicated the need for equipment such as blood pressure monitors and glucometers, while 69.2% expressed the need for educational materials like brochures and posters. Regular support from HCPs was identified by 23.4%, showing that while equipment and materials are the primary needs, ongoing professional support is also valued.

Regarding storage for medical equipment, 97.2% of PEs have space at home to store supplies, with 61.7% acknowledging that their storage needs better security or organization. Only 26.2% reported having a secure and safe place, while a small portion (6.5%) indicated they could find a solution if needed. These findings emphasize the importance of providing proper equipment and addressing storage needs to enhance the effectiveness of NCD management in community settings.

Table 7. Resources and Storage Capacity needed by HIV PEs

Total	107	100
Specific resources or support PEs need to effectively manage NCD		
Equipment (e.g.:BP monitors, glucometers, test strips)	103	96.3
Educational materials (e.g.: brochures, posters)	74	69.2
Regular support and guidance from healthcare providers	25	23.4
Other	4	3.7
Do you have a space in your home to store medical equipment, such as BP monitors, glucometers, weight and other supplies?		
Yes	104	97.2
No	2	1.9
Not sure	1	0.9
Yes, but it needs better security or organization	66	61.7
Yes, I have a secure place that is safe and out of reach of children	28	26.2
I did not think about it before, but I can find one	7	6.5
Other specify	6	5.6

Only PEs who have space in their homes.

2.7. Perceived Benefits and Challenges in NCD Integration into Peer Education

2.7.1. Benefits

Interviewees, including PLHIV, HCPs, RRP+ field officers and program managers highlighted several benefits of integrating NCD services into the PEs model. Key advantages include improved access to healthcare, continuous care, early detection of NCDs, more effective monitoring and follow-up, and the opportunity for PEs to expand their knowledge. Integrating NCD care within the PEs model not only addresses essential health needs for PLHIV but also empowers PEs by broadening their expertise and skill set, enabling them to provide more holistic support within their communities.

2.7.1.1. Improved access to healthcare services

One primary benefit noted was enhanced accessibility, particularly for PLHIV who face challenges with regular health center visits for routine checks like blood pressure, glucose, and BMI monitoring. A key informant shared, ***"Integrating NCD services into the PEs' package enables our clients to receive these services closer to home without needing to visit the health center for every check-up. Only those requiring further attention would need to come in, reducing both patient burden and health center congestion" (KII Musambira HC).***

Respondents emphasized that PEs, due to their close community ties and established roles, are well-positioned to reach patients quickly and regularly. As one HCP noted, ***"PEs are closer to the patients and can reach them more readily than we can. Their role in health education through both peer support groups and individualized sessions allows them to provide timely information and respond to patient needs as they're already engaged in HIV education" (KII, Gisenyi HC).***

Another HCP added, ***"Since PEs already support their peers, integrating NCD services into their responsibilities would be highly beneficial, especially in encouraging PLHIV to prevent NCDs and for those already in treatment to adhere correctly to medications and a healthy lifestyle".(KII- Biryogo HC).***

2.7.1.2. Early Detection and Continuity of Care

Respondents highlighted the valuable role of PEs could play in the early detection of NCDs among PLHIV, which would reduce both the time and frequency of unnecessary health facility visits. Integrating NCD monitoring into the PEs' responsibilities allows for prompt identification of elevated blood glucose levels or high blood pressure, enabling PEs to refer patients to the health center in a timely manner.

Currently, the system of relying on group representatives for NCD patients lacks home visits and individualized follow-ups, a gap that PEs could effectively fill. "At the health center, NCD patients are organized into groups, each with a representative who reminds them of appointments but doesn't visit them at home. By having PEs support NCD follow-ups alongside their existing HIV support role, we could significantly enhance adherence and improve continuity of care", explained a KII from Biryogo HC.

2.7.1.3. Opportunity to Expand Knowledge

The Executive Secretary of RRP+ highlighted ***"integrating NCD management into peer education, offers a valuable opportunity for PEs and PLHIV in general to broaden their understanding of both HIV and NCDs. This approach not only expands their knowledge of NCDs but also encourages essential self-care practices crucial for effective NCD prevention and management. By incorporating lifestyle changes such as reducing or eliminating alcohol, engaging in physical exercise, and adopting healthy eating habits PLHIV can better support their physical and mental health, both of which are essential for managing chronic conditions (KII from RRP+).***

2.7.2. Anticipated Challenges

Although the integration of NCD services into PEs' roles offers significant benefits, a number of challenges were also identified:

2.7.2.1. Knowledge Gaps

A primary concern is the lack/insufficient knowledge among PEs regarding NCD prevention and management, particularly for conditions like hypertension and diabetes.As one key informant noted, ***"The primary challenge that PEs will encounter is the perception among their peers that they lack sufficient skills and knowledge about non-communicable diseases." (HCP, Mulindi HC)***

2.7.2.2. Reluctance among some PLHIV

Some PLHIV may prefer direct interactions with HCP to PEs not only for HIV services but also for NCD-related services, which could hinder integration efforts. This reluctance may reflect concerns about the capability of PEs to manage NCDs effectively. One respondent noted, ***"Resistance from some PLHIV was mentioned as a potential barrier, as certain individuals prefer to engage directly with HCPs rather than PEs." (R3 from FGD, Biryogo HC).*** However, those who prefer to visit HC would not prevent the integration, as they may have the means to manage frequent visits. Meanwhile, the majority of PLHIV, who would greatly benefit from this integrated package, could receive more accessible and consistent support.

2.7.2.3. High Mobility of PEs in Urban Areas

In urban areas, frequent relocations among PLHIV make it challenging PEs to maintain consistent follow-up.

This mobility affects the ability of PEs to stay connected with their assigned peers, disrupting the continuity of care. As one key informant noted, ***"In Kigali, people are constantly moving, which makes it difficult for PEs to locate them when needed, especially given that PEs are volunteers and have limited resources. "KII Biryogo HC***

2.8. Key factors for successful implementation of NCD integration into HIV peer education model.

In exploring the integration of NCD management into the HIV peer education model, it is essential to identify and understand the key factors that will support successful implementation.

2.8.1.1. Training and capacity building

Training and capacity building will be fundamental to the successful integration of NCD management into the HIV peer education model. Effective implementation requires equipping peer educators with skills in areas such as blood pressure monitoring, diabetes screening, and patient counseling on lifestyle modifications. Regular, hands-on training sessions, complemented by refresher courses, would empower PEs to confidently manage NCD-related responsibilities alongside HIV care. Additionally, ongoing mentorship from healthcare providers can reinforce this knowledge, allowing peer educators to stay updated on best practices and to approach complex cases with confidence.

2.8.1.2. Confidentiality and building Trust

Maintaining confidentiality is critical but challenging, as some PEs may find themselves in situation of breach of confidentiality, which could harm the trust between PEs and PLHIV, as one respondent shared, ***"There was a time I had to shift support groups due to lack of confidentiality of my PE." (R2-FGD, Muhoza HC).***

2.8.1.3. Availability of Materials and Equipment

Both PLHIV and healthcare providers emphasized that providing essential equipment, such as blood pressure monitors and glucometers, would significantly enhance the ability of peer educators (PEs) to support patients effectively, ***"If we call our PEs when we're sick, they might respond by saying, 'I don't have any materials to help you, with the right tools, they could offer more support."***

2.8.1.4. Synchronization of services at Health facility level

Interviews revealed that integrating an NCD package into the HIV-PE model at the community level would be insufficient without concurrent integration at the HF level. Lack of alignment between these levels would confuse the management of PEs and create challenges in maintaining confidentiality of PLHIV.

A key informant advised ***"-Integrating NCD management into the responsibilities of PEs, offers substantial benefits; however, this integration cannot be fully effective without parallel integration at the health facility level. Given the HIV-related stigma and the tendency of PLHIV to be more open with HIV clinic providers, I recommend that NCD services for PLHIV be incorporated within HIV-ART clinics. This approach would allow patients to receive comprehensive care in one place, with the same HCP, enhancing the continuity of care (KII-Muhoza HC)***

In alignment with this view, the HIV Division Manager expressed support but emphasized additional considerations ***" While this setup creates a more holistic care model for PLHIV, it would be a partial integration, as other NCD patients would still access their care at separate NCD clinics. However to ensure effective implementation, prioritizing NCD education through PEs is essential, with HCP conducting regular monthly support visits during peer support group sessions. This collaboration would reinforce the PE's role, establishing a structured schedule and set topics to help NCD patients well understand their conditions. Patient awareness and informed self-management are essential for managing any chronic condition, so education should be provided in-group settings and customized for individual needs, particularly regarding lifestyle modifications. For example, discussions on dietary adjustments for diabetic patients should consider the locally available food options within specific regions to ensure realistic, available and accessible food.***

The NCD Division Manager supported the recommendations of previous informants, noting that the proposed model aligns well with the polyvalent approach utilized by CHWs. However, he added, ***"While this strategy may serve as an effective mid-term solution, we envision establishing a comprehensive chronic care department that integrates NCDs, HIV, and mental health services within health facilities to provide holistic patient care. KII from RBC".***

He added, ***"To ensure successful implementation, proactive collaboration is essential in addressing potential challenges, including data recording, documentation, and financing strategies at the service delivery level. For data management, since all data flows through the facility's data manager, this individual could oversee compilation and reporting while awaiting a digital system tailored specifically for PEs."***

2.9. Components of NCD Package for PEs and cost of essentials equipments and materials

2.9.1. NCD Package for peer educators

Interviewees recommended several essential components for the PEs' package in NCD prevention and management, including comprehensive NCD education, screening for hypertension and diabetes, and regular monitoring of blood pressure and blood glucose levels, alongside promotion and prevention activities. They also suggested support for medication adherence, data recording, and home delivery of NCD medications for patients who may face challenges in accessing them directly. This expanded package would empower PEs to provide more holistic and continuous care, meeting the combined HIV and NCD management needs of PLHIV.

Table 8. Proposed NCD Package for PEs

Component	Description	Key Activities
Counseling	Provides guidance to patients on managing hypertension, diabetes, and general health.	• Personalized counseling sessions • Motivational support for lifestyle changes
Education	Enhances patient understanding of NCDs, emphasizing the importance of lifestyle modifications.	• Health talks and group sessions • Educating on diet, exercise, and the importance of medication adherence
Monitoring	Regular checks on blood pressure (BP), blood glucose levels, and BMI to track health progress.	• BP measurement • Glucose testing Weight, height, and BMI calculation
Anthropometric Measurements	Involves measuring and recording weight and height to calculate BMI as part of regular health assessments.	• Routine weight and height checks • BMI assessment to identify risk levels
Referral	Refers patients to Health centers for further diagnosis and management if abnormal levels are detected.	• Immediate referrals for abnormal BP or glucose readings • Follow-up and coordination with health facilities

2.9.2. Costing of Key items/equipment for PEs per year

The table below details the essential resources for a PE to screen, monitor, and manage hypertension and diabetes, totaling 526,680 RWF annually per PE. Major one-time investments include key medical equipment, such as a BP monitor (54,000 RWF), glucometer (30,000 RWF), and weight scale with height tape (150,000 RWF), with an expected lifespan of 3-5 years if properly maintained. Recurring costs for continuous diabetes care include test strips (40,000 RWF), lancets (2,000 RWF), and alcohol swabs (6,000 RWF). Patient education and hygiene items, including gloves (43,200 RWF), educational materials (5,000 RWF), and referral cards (2,500 RWF), ensure safe and informed care. Additionally, a monthly incentive (10,000 RWF) for PEs totals 120,000 RWF annually, highlighting the importance of PE motivation.

Table 9.Estimate cost for equipment and consumables for NCD integration

S N	Item	Unit	Qty	U.P(RWF)	Total
1	BP Monitor(Omron)	Unit Kit	1	54,000	54,000
2	Batteries for BP Machine	Box of 4 Batt	4	2,700	10,800
3	Glucometer(code free)**	Unit Kit	1	30,000	30,000
4	Betteries for Glucometer	Piece	2	1,000	2,000
5	Test Strips	Box of 50	4	10,000	40,000
6	Blood lancets	Box of 200	1	2,000	2,000
7	Alcohol Swabs	Box of 100	2	3,000	6,000
8	Cotton wood 500g	Roll	1	1,700	1,700
9	Biohazard bag	Piece	2	3,200	6,400
10	Weight Scale with height tape(non-electric)	Unit Kit	1	150,000	150,000
11	BMI Chart	Piece	1	500	500
12	Disposable Gloves	Box of 50pairs	4	10,800	43,200
13	Referral Cards	Piece	50	50	2,500
14	Printing Education materials	Piece	5	1,000	5,000
15	Logbook A5(200 pages) black and white with cover page,300g colored-wire binding	Piece	1	4,000	4,000
16	Pens	Piece	6	200	1,200
17	Safety Boxes	Box	3	2,460	7,380
18	Boxes for medical equipment(BP, glucometer,etc)	Piece	1	15,000	15,000
19	Bag	Piece	1	25,000	25,000

Some vendors may offer a free glucometer with the purchase of three boxes of test strips (typicallytotaling 150 strips)
The cost estimates provided are based on a local market survey,

The assessment provides valuable insights into the potential for integrating NCD management into the HIV PE's model in Rwanda. Both quantitative and qualitative data reveal strong support for this integration, highlighting significant opportunities and critical areas for improvement. Notably, 100% of PEs interviewed reported a willingness to take on additional NCD management responsibilities, and nearly 90% agreed that such an approach could improve health outcomes for PLHIV. However, data also indicate a substantial gap in formal training: while all respondents reported awareness of NCDs, only 9.3% had received any formal training on NCD care, underscoring the need for comprehensive training programs. Qualitative feedback reinforces this finding, with HCPs, Program managers and PEs expressing the need for targeted training in blood pressure and glucose monitoring, medication adherence support, and counseling on lifestyle modifications for effective NCD management alongside HIV care.

A critical finding of this assessment is the significant knowledge gap among PEs concerning NCD management. Although all respondents (100%) reported awareness of NCDs, only 9.3% had received formal training on how to manage these conditions. This underscores the urgent need for targeted training programs that equip PEs with essential skills to address both HIV and NCDs effectively. Consistent with this assessment, Badacho and Mahomed (2023) also identified that inadequate training and limited resources significantly impede the effective integration of NCD services into HIV care, further stressing the importance of structured training initiatives to support comprehensive management29.

Moreover, 87.9% of PEs do not perceive NCD care integration as a burden, indicating a strong level of confidence in managing additional responsibilities. This assurance is reinforced by the fact that all interviewed PEs felt capable of balancing their current roles with NCD management tasks. However, it is essential to address the minority (1.9%) who were uncertain and the 10.3% who viewed the integration as burdensome. Their concerns may highlight deeper systemic issues, such as workload management and the need for structured support systems, which are critical to sustaining PEs' capacity and effectiveness in a dual role.

While there is clear support for integration, some KII expressed that some patients may be hesitant to receive services from PEs. Some interviewees noted that certain individuals might prefer to engage directly with HCPs rather than PEs. However, this should not prevent a big number of PLHIV who would like to benefit from the convenience and accessibility of community-based support, which could significantly improve care continuity and adherence.

The assessment also sheds light on the years of experience and educational background of PEs, which are critical factors influencing their readiness to take on additional responsibilities, such as NCD management. A significant proportion of PEs have more than five years of experience in their roles, which suggests a high level of familiarity with community health issues and the HIV continuum of care. This extensive experience likely contributes to their confidence in supporting PLHIV and managing additional tasks like NCD care. However, the educational levels of PEs varied, with a large number having only completed primary or basic education. Moreover, the assessment reveals a high level of acceptance among PLHIV for integrated HIV and NCD services, with 97.2% of respondents indicating that their peers would be open to receiving this dual support. This strong community acceptance is critical for the success of the integration effort, as it not only suggests a reduced stigma associated with HIV and NCDs but also reinforces the role of PEs in fostering trust and accessibility However it is important to note that this was a self-report from PEs . Similar findings by Bukenya et al. reflect the positive community reception to integrated services, which has been shown to help reduce stigma for both HIV and NCD care, further supporting a stigma-sensitive and cohesive approach to community health30.

PEs' experience and educational backgrounds are essential in determining their readiness for expanded roles, including managing non-communicable diseases (NCDs) alongside HIV care. A significant portion of PEs in the assessment has over five years of experience, indicating a deep familiarity with community health and the HIV continuum of care. However, educational levels among PEs vary, with many having completed only primary education. This aligns with findings by Amos et al., where 94% of CHWs sampled had primary education as their highest level of schooling31, suggesting that a primary education level can be sufficient for PEs in Rwanda who have gained experience through their roles. Additionally, the assessment reveals high acceptance among PLHIV for integrated HIV and NCD services, with 97.2% of respondents open to receiving dual support. Although these findings were self-reported by PEs, which may introduce some social desirability bias, similar research by Haruna et al. reinforces this positive attitude towards integrated services, highlighting a general receptiveness within communities for combined health support initiatives32.

Resource needs are a critical factor for successful integration of NCD care. Quantitative findings on equipment costs underscore the significant investment required for effective NCD monitoring, including essential items like blood pressure monitors, glucometers, and recurring supplies such as test strips.

To sustain these efforts, a reliable and well-supported supply chain is essential to maintain a continuum of patient care at the community level. Ensuring adequate funding for consumables is equally crucial, as shortages could interrupt care quality and consistency.

This need aligns with findings from other studies emphasizing that a sustainable supply chain is vital for implementing health programs effectively, as it helps prevent disruptions that could compromise health outcomes33,34

Feedback from HCP, and program managers highlights the need to align NCD integration at both community and HF levels. A central challenge lies in the current lack of synchronization between HIV and NCD services at HF. Multi-month dispensing (MMD) has reduced the frequency of HIV clinic visits for most PLHIV, while those with NCDs still require monthly appointments, creating an imbalance in service delivery. Additionally, many PLHIV prefer not to disclose their HIV status to non-HIV care providers, posing confidentiality concerns when integrating NCD care. As a result, situating NCD services within HIV clinics would better harmonize service schedules for both conditions, fostering a more cohesive and secure care model. To ensure efficient coordination, interviewees recommended that PEs remain under the management of HIV providers, thus supporting seamless communication between providers, patients and s. Evidence from Uganda30 similarly shows that integrated services reduce visit frequency and improve patient convenience by aligning HIV and NCD care, creating a streamlined, patient-centered experience. However, implementing this approach would require policy-level endorsement to facilitate practical execution. Aligning NCD and HIV services at both levels would simplify reporting processes, protect confidentiality, and provide holistic support to PLHIV managing both HIV and NCDs.

This assessment's strength lies in its comprehensive approach, gathering insights from program managers, PLHIV and providers, thereby offering a well-rounded view of the benefits, challenges, and opportunities associated with integrating NCD management into the HIV peer education model.

However, several limitations must be considered. Firstly, its cross-sectional design captures data at a single point, which may not reflect shifts in PEs' knowledge or attitudes following future interventions. Additionally, while the assessment focuses on hypertension and diabetes, which narrows the scope, these conditions can lead to complications affecting other systems, such as the kidneys or eyes. Effective NCD integration should therefore include capacity building to equip PEs with skills for early detection of such complications.

Furthermore, the reliance on self-reported data introduces the potential for bias, particularly social desirability bias, where respondents may overstate their confidence or willingness to manage NCDs. Finally, the assessment's focus on specific districts and health facilities may limit the generalizability of findings.

4.1. Recommendations

Based on the findings of this assessment, the following recommendations are proposed to facilitate the integration of NCD management into the HIV PE model:

To Rwanda Biomedical Centre (HIV and NCD Programs)

1. **Training:** A comprehensive training program is essential to equip PEs with the knowledge and skills needed to effectively manage NCDs, such as hypertension and diabetes. This program should emphasize understanding NCD risk factors, symptoms, and appropriate management strategies, expanding on existing HIV training content. Additionally, providing NCD management training for healthcare providers in HIV clinics would enable them to more effectively support PEs, allowing for better integration of both NCD and HIV care. This dual approach would strengthen community-based care, promote early detection, and enhance continuity of care for PLHIV facing the dual burden of HIV and NCDs.

2. **Synchronizing NCD Services within HIV Clinics for PLHIV with Comorbidities:** Synchronizing NCD services, such as diabetes and hypertension care, within HIV clinics for PLHIV who have NCD comorbidities offers several benefits for both patients and providers. This model enables PLHIV to receive integrated care for both conditions at one location, reducing the frequency of separate clinic visits and supporting adherence. By managing both HIV and NCD services within the same clinic, healthcare providers can coordinate their management with PEs more effectively.

To Health facilities

Mentorship of PEs: Regular mentorship and guidance from healthcare providers should be established to support PEs in effectively managing NCDs. This can be facilitated through structured regular, check-ins and supervision/mentorship sessions, which provide opportunities for continuous learning, skill enhancement, and reinforcement of best practices in NCD care.

To Rwanda Network of PLHIV (with support from stakeholders)
3. Reducing PLHIV reluctance to seek peer support

- To address the challenge of reluctance among some PLHIV to seek support from their peer educators, consider developing and sharing testimonials or success stories from PLHIV who have benefited from peer educators' support in managing both HIV and NCDs. These stories can be shared through meetings, or other communication channels to highlight the positive outcomes of integrated care. By showcasing real-life successes, this approach can help build trust and gradually reduce skepticism among other PLHIV.
- Educate peer educators (PEs) on the importance of confidentiality and the potential consequences of breaching it. Emphasizing these principles will help build trust and confidence among their peers, fostering stronger and more effective support relationships

4.Provision of Essential Equipment and consumables: PEs require essential tools, including blood pressure monitors, glucometers, weight scales, height tapes, and test strips, to effectively manage NCDs in the community. To ensure sustainable and impactful NCD management, the RRP+ and stakeholders should prioritize the procurement and regular distribution of this equipment, enabling PEs to provide comprehensive and reliable care at the community level.

5.Monitoring and Evaluation: To support integration effectively, a monitoring and evaluation framework should be developed to streamline record-keeping, ensuring unified documentation for both HIV and NCD conditions. This approach will prevent the need for separate record-keeping systems, enhancing data consistency and facilitating comprehensive patient tracking across conditions.

4.2. Conclusion

Integrating hypertension and diabetes care into the HIV peer education model is a feasible initiative if key challenges are addressed. Primary barriers include bridging knowledge gaps in NCD management among PEs, embedding NCD services within HIV clinics to provide comprehensive care for PLHIV with co-morbid NCDs, and ensuring ongoing access to essential resources. Effective implementation will require capacity-building initiatives tailored for both healthcare providers and PEs, adequate provision of necessary equipment, and consistent support from healthcare providers. These steps will empower PEs to manage both HIV and NCD care effectively, thereby enhancing the continuity and quality of community-based support for PLHIV.

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Appendices

Appendix 1: PEs interview guide

No.	Questions	Answers	Skip pattern
Section 1. Demographics information			
Q01.0.Respondent code			
Q1.1	HF name [Put a dropdown 1. Muhoza HC, 2. Mulindi HC, 3. Bilyogo HC, 4. Gisenyi HC, 5. Musambira HC]	_____ _____ _	
Q1.2	Age	/____/ (years)	
Q1.3	Sex	1. Male 2. Female 3. Other	
Q1.4	Marital status	1. Single 2. Married/Cohabiting 3. Widow/widower 4. Divorced/Separated 5. Other, specify	
Q1.5	Completed level of education	1. None 2. Primary 3. 9-Year Basic Education 4. 12-Years Basic Education 5. University/Postgraduate	
Q1.6	Occupation	1. Farmer 2. Private Business 3. Employed (monthly salary) 4. Student 5. Unemployed 6. Other (Specify)	

Q1.7	*How long have you been a PE(Years of Experience as an HIV PE)*	1. Less than 1 year 2. 1–3 years 3. 3–5 years 4. 5 years+	
Section 2. Knowledge in HIV			
Q2.1	*How confident are you in your ability to support your peers in managing their HIV care as a PE?*	1. Very confident 2. Confident 3. Somewhat confident 4. Not confident	
Q2.2	*Do you feel you have sufficient knowledge about HIV to effectively support your peers in your role as a PE?*	1. Yes 2. No 3. A little 4. I need to learn more 5. Don't know	
Q2.3	*Have you received any training on HIV since becoming a PE?*	1. Yes 2. No 3. Don't remember	*If the answer is "No" or "Don't remember," skip to Q3.1.*
Q2.4	*If yes, how many training sessions related to your role as a PE have you attended since becoming a PE?*	1. 1 training session 2. 2–4training sessions 3. 5 and more	
Section 3. Knowledge in NCD care			
Q3.*1*	*Have you ever heard of NCDs(Eg. Diabetes/or and Hypternsion ?*	1. Yes 2. No 3. Don't know	
Q3.2	*If yes, through which channel did you hear about NCDs?*	*1. Healthcare provider or clinic* *2. Training or workshop* *3. Community outreach or awareness campaign* *4. Media (TV, radio, internet, newspapers)* *5. PEs or support groups*	If no skip Skip to q3.3) Put a restricti on

		6. *Other (please specify):* _____	
Q3.3	*Have you ever received formal training on how to manage NCDs?*	1. Yes 2. No 3. Don't remember	*If the answer is "No" or "Don't remember," skip to* ***Q3.6****.*
Q.3.4	*If Yes, what NCDs-related training did you receive?*	*Leave it open*	
Q3.5	*If trained, how many training sessions related to NCD care have you attended?*	1. 1 2. 2–3 3. More than 3	
HYPERTENSION SECTION			
Q3.6	What common risk factors for developing hypertension do you know? (Select all that apply)	1. High salt intake 2. Lack of physical activity 3. Family history of hypertension 4. Excessive alcohol consumption 5. Stress 6. Obesity 7. Age 8. Other, specify 9. I don't know	
Q3.7	What are the common symptoms of hypertension do you know? (Select all that apply)	1. Severe headache 2. Dizziness 3. Blurred or double vision 4. Shortness of breath 5. I don't know 6. Other (please specify	

Q3.8	What are potential complications of uncontrolled hypertension	1. Stroke 2. Heart attack 3. Kidney failure 4. Vision loss 5. Other, specify 6. I don't know	
Q3.9	What are common lifestyle changes to help manage hypertension? (Select all that apply)	1. Reduce salt intake. 2. Exercise regularly 3. Maintain a healthy weight 4. Limit alcohol consumption 5. Quit smoking 6. Monitor blood pressure regularly 7. Other, specify 8. I don't know	
Q3.10	Can hypertension be cured?	1. Yes 2. No 3. I don't know	
DIABETES SECTION			
Q3.11	What common risk factors for developing Diabetes do you know? (Select all that apply)	1. Family history of diabetes 2. Overweight or obesity 3. Physical inactivity 4. Unhealthy diet (high in sugar and processed foods) 5. High blood pressure(hypertension) 6. Other, specify_____ 7. I don't know	

Q3.12	What are the common symptoms of diabetes do you know? (Select all that apply)	1. Frequent urination (polyuria) 2. Excessive thirst (polydipsia) 3. Unexplained weight loss 4. Increased hunger (polyphagia) 5. Blurred vision 6. Other specify 7. I don't know	
Q3.13	What are potential complications of diabetes?	1. Stroke 2. Heart attack 3. Kidney damage 4. Vision loss 5. I don't know 6. Other (please specify): _____	
Q3.14	What are common lifestyle changes to help manage Diabetes? (Select all that apply)	1. Healthy Eating. 2. Regular Physical Activity. 3. Weight Management. 4. Blood Sugar Monitoring 5. Other, specify 6. I don't know	
Q3.15	Can Diabetes be cured?	1. Yes 2. No 3. I don't know	
Section 4. Perceived Benefits/challenges of Integrating NCD Care			
Q4.1	Are you willing to support the integration of non-communicable disease (NCD) management, such as diabetes and hypertension, into the peer education model	1. Yes 2. No 3. Unsure	
Q4.2	Do you believe that integrating NCD care (Diabetes & Hypertension) into the HIV peer	1. Strongly agree 2. Agree 3. Neutral	

	education model will improve health outcomes for people living with HIV?	4. Disagree 5. Strongly disagree 6. I don't know	
Q4.3	Do you think that integrating NCD care to their existing role will be a burden to PE?	1. Yes 2. No 3. Unsure	
Q4.4	Do you believe you will need additional training to effectively support NCD care?	1. Yes 2. No 3. Unsure	
Q4.5	What do you think could be the challenges in integrating NCD services into HIV peer education?	1. Insufficient/Lack of training 2. Increased workload/responsibility 3. Lack of materials 4. Stigma associated with HIV/ NCDs 5. Lack of motivation or incentives 6. Other (please specify)____ 7. I don't know	
Section 5. Acceptability and resources for NCD Integration			
Q5.1	Do you feel capable of balancing your current responsibilities with the additional task of managing NCD services such as diabetes and hypertension?	1. Yes 2. No 3. Unsure	
Q4.2	Do you think people living with HIV in your community would be open to receiving support from PEs for both HIV and NCD management	1. Yes 2. No 3. Unsure	
Q5.3	What specific resources or support would you need to effectively manage diabetes and hypertension in your role as a PE?	1. Educational materials (e.g., brochures, posters) 2. Equipment (e.g., blood pressure monitors,	

		glucometers, test strips) 3. Regular support and guidance from healthcare providers 4. Other (please specify): _____ 5. I don't know	
Q5.4	Do you have a space in your home to store medical equipment, such as blood pressure monitors, glucometers, weight and other supplies?	1. Yes 2. No 3. Not sure	
Q5.5	If yes, how would you describe the security and organization of the storage space in your home?	1. Yes, I have a secure place that is safe and out of reach of children. 2. Yes, but it needs better security or organization 3. I did not think about it before, but I can find one 4. Other specify	
Q6.6	Any other comment/addition?		

Appendix 2.A. FGD guide for PLHIV with NCD (Hypertension or/and Diabetes)

Q.1. Do you feel satisfied with the services provided by PEs regarding HIV? Can you explain why you feel satisfied or dissatisfied?

Q2. Would you describe NCD-related services that are provided to you by PEs educators if any?

Q3. What benefits do you foresee if HIV PEs were able to support you in managing your diabetes and hypertension in addition to your HIV care?

Q4. What concerns or challenges do you think might arise from integrating diabetes and hypertension management into the peer education model? How do you think these challenges could be addressed?

Q5. What kind of support would you like to receive from HIV PEs regarding your diabetes and hypertension management? For example, would you prefer educational support, regular check-ins, or assistance with medication adherence?

Q6. How confident are you in the ability of HIV PEs to help manage both HIV and NCDs like diabetes and hypertension? What would help increase your trust and confidence in their expanded role?

Q7. Anything else you would like to share with us?

Appendix 2.8. Iyobora kiganiro mumatsinda kubantu bafite Virusi itera Sida kandi bafite nindwara zitandura

Q.1: Ese wumva wishimiye serivisi zitangwa n'abajyanama b'urungano ku bijyanye virusi itera SIDA? Ushobora gusobanura impamvu wumva ubishimiye cyangwa utabyishimiye?

Q.2. Wadusobanurira serivisi zijyanye n'indwara zitandura niba harizo wahawe n'abajyanama b'urungano -niba zihari?

Q.3: Ni izihe nyungu wowe ubona mu gihe abajyanama b'urungano batangira guha ubufasha a abafite uburwayi bwa diyabete n'umuvuduko w'amaraso aho batuye?

Q.4: Ni izihe mbogamizi cyangwa impungenge ubona zishobora kuvuka mu gihe servisi za diyabete n'umuvuduko w'amaraso byashyirwa mu nshingano z'abajyanama b'urungano? Utekereza ko izo mbogamizi zakemurwa gute?

Q.5: Ni ubuhe bufasha wifuza kubona buva ku bajyanama b'urungano ku bijyanye no guha servisi abarwayi ba diyabete cg umuvuduko w'amaraso? Urugero, wakishimira guhabwa inyigisho ku myitwarire?, gusuzuma ingano y'isukari cg umuvuduko w'amaraso, cyangwa ubufasha mu gukurikiza gahunda y'imiti? N'ibindi?

Q.6.5: Wumva ufitye bajyanama b'urungano icyizere ko bashobora kugufasha abafite virusi itera SIDA ndetse n'abandi mu kwita ku ndwara zidakira nka diyabete n'umuvuduko w'amaraso? Ni iki ubona gikozwe cyakongerera icyizere mu bushobozi bwabo bwo kwita kuri izo nshingano z'inyongera? Q7: Hari ikindi kintu wifuza kuba wadusangiza ?

Appendix 3. Interview guide of Program managers AND Healthcare Providers

Q1. What do you think would be the main benefits of integrating diabetes and hypertension management into the existing HIV peer education model for people living with HIV?

Q2. How do you believe this integration would affect the quality of care and support that PEs provide? Do you think it would improve or complicate the care process for patients?

Q3. What challenges do you foresee PEs facing if they are expected to provide support for both HIV and NCD management? How do you think these challenges could be addressed or anticipated?

Q4. What barriers, such as resource limitations, do you think would need to be overcome to successfully integrate NCD services into the PEs' role?

Q5. In your opinion, what factors would be crucial to ensure the sustainability and effectiveness of integrating NCD services into the HIV peer education model? How can these factors be supported?

Q6. What key components (e.g., prevention, screening, and management) should be included in the NCD service package for integration into the HIV peer education model?

Appendix 4.A.: Consent Form for voluntary participation in research

Read or listen carefully to the content of this document and ask questions before agreeing to participate in this research. You have the right to ask questions at any time before, during, or after the research.

1. Introduction
Good morning/afternoon, my name is ……., and I have been sent by the Rwanda Network of People Living with HIV (RRP+), in partnership with the Rwanda Biomedical Center/HIV Division (RBC/HIV), to assess the feasibility of integrating non-communicable disease (NCD) health services into the existing service package provided by HIV PEs.

2. Purpose of the assessment
The main purpose of this research is to understand whether it is feasible to integrate services related to non-communicable diseases into the current service package provided by PEs for people living with HIV, to understand the benefits or challenges, and to gauge how the beneficiaries would receive the integration of some NCD-related services into the existing HIV PE package. Additionally, this research will help us identify which services need to be added to the PEs' package.

We plan to interview individuals aged 18 and above. Participants in this research include PEs who have been in the role for at least a year and people living with HIV who also have an NCD, such as diabetes or hypertension. We also aim to speak with healthcare providers working in HIV services at selected health facilities. We request your permission to interview you and to audio-record our conversation so that we can consolidate your thoughts with those of others participating in this research. If you have any questions, feel free to ask before agreeing to participate in this research interview.

3. Voluntary Participation
Please be aware that participation in this research is voluntary. During the interview, you may find some questions difficult to answer. If that happens, you are not obliged to respond. Also, be assured that not participating in this research will not affect your right to receive health services as usual at the health facility.

4. Explanation of theassessment
We want to discuss with you how you perceive the integration of NCD-related services into the existing package provided by PEs for their peers living with HIV. The interview will also focus on the challenges, benefits, and your response to integrating NCD services into the current package provided by PEs.

The conversation between us will remain confidential. No one else will know what you share with us, and your name will not be recorded. Instead of using your name, we will use a number to maintain confidentiality. All information you provide, whether written on this computer or recorded, will be deleted after the research. The interview will be conducted in Kinyarwanda and will last approximately 45-60 minutes, but you can stop it at any time.

5. Concerns and Care for Potential Distress

To date, there are no known concerns for those who participate in this research. However, we may ask you a question that you find difficult to answer. You have the right not to answer a question if you do not wish to discuss it.

6. Benefits

Participants in this research will provide information that will help identify NCD services that can be added to the existing package provided by PEs, as well as understand the benefits, challenges, and requirements for integrating these services into those provided by PEs to their peers living with HIV.

7. Compensation for participants

There is no planned payment for participating in this research, except for a small compensation for your transportation costs incurred for participating in the research. This amount will be 5,000 Rwandan Francs.

8. Confidentiality

Please be assured that if you agree to participate in the interview, your name will not be recorded during data analysis, and there will be no link between what you tell us and your name. Instead of your name, we will use a number to ensure confidentiality.

9. Participation in Research Findings

After the research concludes, you have the right to know the findings. There will be meetings to present the research findings, and if you request the report, you will receive it without any problem.

10. Contact person for this assessment

If you have any questions or need clarifications about this research, you can contact Deo Mutambuka at +250 788 313 311 or via email at deo.rrpplus@gmail.com

Appendix 4.B: Inyandiko Yo Kwemera Gutanga Amakuru Ku Bushake Mu Bushakashatsi

Soma cyangwa wumve witonze ibiri muri iyi nyandiko, ubaze ibibazo mbere yo kwemera kugira uruhare muri ubu bushakashatsi. Ufite uburenganzira bwo kubaza ikibazo igihe cyose haba mbere cyangwa nyuma y'ubushakashatsi ndetse no mu gihe buri gukorwa.

1. Intangiriro

Mwaramutse/Mwiriwe, Nitwa.....ntumwe n'Urugaga Nyarwanda rw'Abafite Virusi Itera SIDA (RRP+) , kubufatanye n'ikigo gishinzwe gukora ubushakashatsi no kurwanya virusi itera SIDA (RBC/HIV), gusuzuma niba bishoboka ko services z'ubuzima kubijyanye n'indwara zitandura zakwinjizwa mu ipaki ya serivisi zisanzwe zitangwa n'abajyanama b'urungano kubantu bafite virusi itera Sida.

2. Intego y'ubushakashatsi

Intego nyamukuru y'ubu bushakashatsi ni ukumva ku buryo bwimbitse niba bishoboka kwinjiza serivisi zirebana nindwara zitandura, mwipaki isanzwe ya serivisi zitangwa nabajyanama b'urungano kubantu bafite virusi itera Sida, kumva inyungu cyangwa se imbogamizi, ndetse no kumva uko abagenerwabikorwa bakira uko gushyira zimwe muri serivisi zirebana n'indwara zitandura muri paki abajyanama burungano basanzwe batanga. Ikindi ubu bushakashatsi buzadufasha kumenya izo serivisi zikenewe kongerwa muri paki itangwa n'abajyanama b'urungano.

Turateganya kuganira n'abafite imyaka 18 gusubira hejuru, umuntu winjira muri ubu bushakashatsi ni umujyanama w'urungano umaze byibura umwaka muruwo murimo, undi ni umuntu ufite virusi itera Sida akaba arwaye nimwe mundwara zitandura nka diyabete cg umuvuduko w'amaraso uri hejuru.

Ndetse turifuza kuganira n'abaganga bakora muri serivisi za HIV kubigonderabuzima byatoranijwe. Twagusabaga uburenganzira bwo kuganira nawe ndetse tugafata amajwi ikiganiro turi bugirane kugirango tuzabashe guhuza ibitekerezo uduha ndetse n'ibyabandi bagize uruhare muri ubu bushakashatsi. Ubaye hari ibibazo ufite wemerewe kudusobanuza mbere y'uko utwemerera kuganira nawe mu rwego rw'ubu bushakashatsi.

3. Kugira uruhare mu kiganiro ku bushake

Nagira ngo nkumenyeshe ko kugira uruhare muri ubu bushakashatsi ari ubushake bw'umuntu. Ikindi ni uko, mu gihe cy'ikiganiro, bimwe mu bibazo bishobora kukugora gusubiza. Iyo bimeze gutyo, si ngombwa ko usubiza. Nagira ngo kandi nkwizeze y'uko kutagira uruhare muri ubu bushakashatsi bitazakuvutsa uburenganzira bwawe bwo kubona servisi z'ubuzima nkibisanzwe ku kigondera buzima.

4.Ibisobanuro ku bushakashatsi

Turifuza kuganira nawe Turifuza kuganira nawe nk'umuganga ukora muri serivisi za HIV, ku birebana n'uburyo ubona serivis zirebana nindwara zitandura zakwinjizwa muri paki ya serivisi abajyanama b'urungano basanzwe batanga kuri bagenzi babo bafite ubwandu bwa virusi itera Sida. Ikiganiro kiri bwibande kandi ku birebana n'imbogamizi, inyungu ndetse nuko mwakwakira uku kwinjiza serivisi zirebana n'indwara zitandura muri paki isanzwe itangwa n'abajyanama b'urungano. Ikiganiro hagati yacu kiraba mu ibanga. Ibyo mutubwira nta wundi uzabimenya kandi izina ryawe ntaho riri bwandikwe. Muku kumenya turifashisha numero mu rwego rwo kurinda ibanga. Ibisubizo uduha byaba ibyandikwa muri iyi mudasobwa dufite cyangwa ibyafashwe amajwi bizahita bisibwa nyuma y'ubu bushakashatsi. Ikiganiro kiraba mu rurimi rw'ikinyarwanda kandi kimare nibura iminota 30-45 ariko ushobora kugihagarika igihe cyose ubishakiye.

5. Impungenge, kwita ku bashobora guhungabana

Kugeza ubu nta mpungenge zizwi zaba kuwagize uruhare muri ubu bushakashatsi. Gusa dushobora kukubaza ikibazo ukumva ntubohokeye kugisubiza. Wemerewe kudasubiza ikibazo igihe wumva udashaka kugira icyo ukivugaho

6. Inyungu

Abagira uruhare muri ubu bushakashatsi barataanga amakuru yafasha mu kumenya serivisi zijyanye n'indwara zitandura zakongerwa muri paki isanzwe itangwa n'abajyanama b'urungano, ndetse no kumenya inyungu, imbogamzi, ndetse nibisabwa kugirango izo serivisi zishyirwe muzo abajyanama b'urungano batanga kuri bagenzi babo bafite virusi itera Sida.

7. Icyo uri muri ubu bushakashatsi agenerwa

Nta gihembo giteganijwe ku muntu uribugire uruhare muri ubu bushakashatsi keretse amafaranga ya communication uzohererezwa kuri telephone yawe angana nibihumbi bitanu (5000) by'amanyarwanda.

8. Ibanga

Nagira ngo mbizeze ko nimwemera ko tugirana ikiganiro, izina ryawe ntaho rizandikwa mu gihe cy'isesenguramakuru kandi nta huriro rizagaragara hagati y'ibyo umbwira n'izina ryawe. Mu mwanya w'izina ryawe, harakoreshwa inomero mu rwego rwo gushimangira rya banga.

9. Kugira uruhare mu byavuye mu bushakashatsi

Ubushakashatsi niburangira, ufite uburenganzira bwo kumenya ibyavuyemo. Hazaba inama zigamije gutangaza ibyavuye mu bushakashatsi kandi na raporo nuramuka uyifuje uzayihabwa nta kibazo.

10. Abantu bakwiyambazwa muri ubu bushakashatsi

Mugihe ugize ikibazo cyangwa se ibyo wifuza gusobanuza kuri ubu bushakashatsi, wahamagara Deo Mutambuka kuri numero +250 788 313 311 cg kuri email: deo.rrpplus@gmail.com

Appendix 5. List of selected Health centers and assessment participants

District	Health Center	Interviewee	Type of interview	#of participants
Kirehe	Mulindi	Peer Educators	Structured	9
		• Nurse in HIV-ART • NCD Nurse	In-depth	2
		PLHIV with NCD comorbidity	FGD	6
Nyarugenge	Biryogo	Peer Educators	Structured	41
		• Nurse in HIV-ART • NCD Nurse	In-depth	2
		PLHIV with NCD comorbidity	FGD	7
Musanze	Muhoza	Peer Educators	Structured	26
		• Nurse in HIV-ART • NCD Nurse	In-depth	2
		PLHIV& NCD	FGD	8
Rubavu	Gisenyi	Peer Educators	Structure	17
		• Nurse in HIV-ART • NCD Nurse	In-depth	2
Kamonyi	Musambira	Peer Educators	In-depth	14
		• Nurse in HIV-ART • NCD Nurse	In-depth	2

Appendix 6. List of Key informants

SN	Names	Organization	Position
1	Dr Gallican N Rwibasira	RBC	Division Manager
2	Dr Francois Uwinkindi	RBC	Division Manager
3	Deo Mutambuka	RRP+	Executive Secretary
4	Jeannette M Ribakare	RRP+	Field Officer
5	Jean Baptiste Twizeyimana	RRP+	Field Officer
6	BYUKUSENGE Marie Louise	Mulindi HC	HIV Nurse/ARV
7	HITIMANA Eliab	Mulindi HC	NCD Nurse
8	MANIRAGUHA Marthe	Musambira HC	NCD Nurse
9	AMINI Yvette	Musambira HC	Nurse HIV/ARV
10	BAZIMAZIKI Bienvenue	Biryogo HC	NCD Nurse
11	UWABERA Clemence	Biryogo HC	HIV-ARV Nurse
12	UWIMPUHWE Marie Michelle	Gisenyi HC	HIV-ARV Nurse
13	MUKANDORI Donatha	Gisenyi HC	NCD- Nurse
14	HAKIZIMANA Gaston	Muhoza HC	NCD- Nurse
15	KURADUSENGE Wellars	Muhoza HC	HIV-ARV Nurse

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