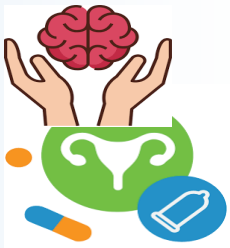
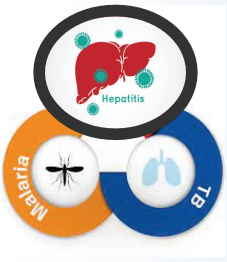
Rwanda Biomedical Centre

Healthy People. Wealthy Nation

ASSESSMENT OF VULNERABILITY OF PERSONS WITH DISABILITIES AND THEIR RISKS OF HIV ACQUISITION, AND THE BURDEN OF TB, HEPATITIS, MALARIA, NON-COMMUNICABLE DISEASES, SEXUAL REPRODUCTIVE HEALTH AND MENTAL HEALTH IN RWANDA







UPHLS

Umbrella of Organizations of Persons with Disabilities in the Fight against HIV&AIDS and for Health Promotion (UPHLS)

Kigali, July 2024

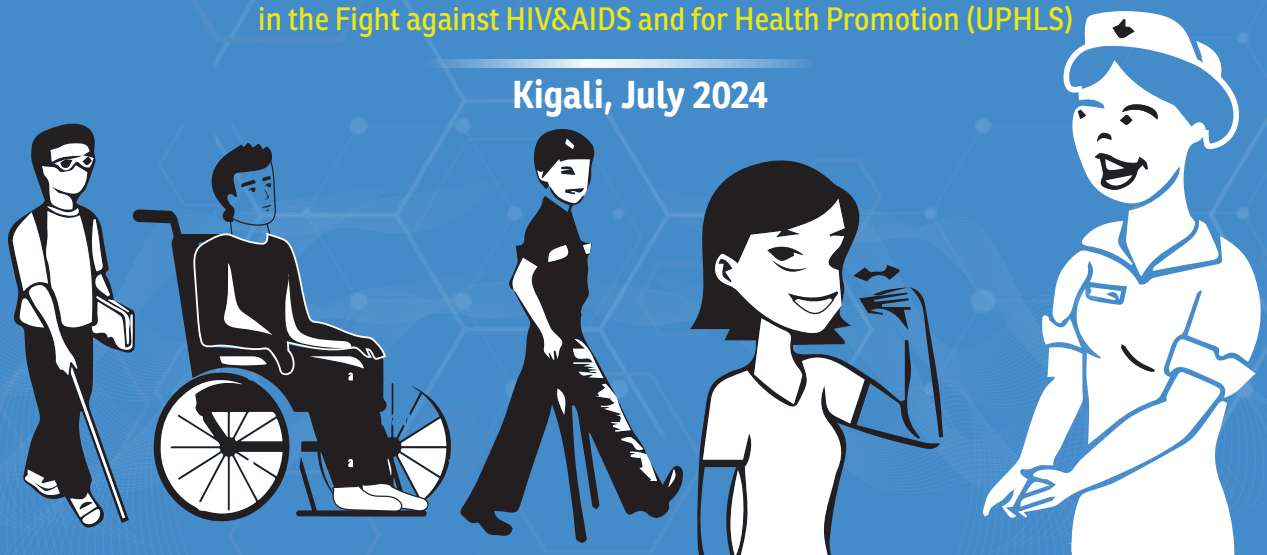


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List of Abbreviations and Acronyms

CRPD	Convention on the Rights of Persons with Disabilities
CSOs	Civil Society Organizations
FGDs	Focus Group Discussions
HIV	Human Immunodeficiency Virus
MOH	Ministry of Health
NCPD	National Council of Persons with Disabilities
NISR	National Institute of Statistics Rwanda
OPD	Organisation of Persons with Disability
PWD	Person with disability
RBC	Rwanda Biomedical Center
RDHS	Rwanda Demographic and Health Survey
RNEC	Rwanda National Ethics Committee
SRH	Sexual and Reproductive Health
STIs	Sexually Transmitted Infections
UN	United Nations
UNAIDS	Joint United Nations Program on HIV/AIDS
UNFPA	United Nations Population Fund
UPHLS	Umbrella of organizations of persons with disabilities in fighting against HIV& AIDs and for health promotion
WHO	World Health Organization

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Foreword

Persons with disabilities have largely been unrecognized as a population for public health attention, but recent efforts have made the poor health of this population visible. In addition, people with disabilities often are at greater risk for health problems that can be prevented.

It is known that persons with disabilities have twice the risk of developing conditions such as depression, asthma, diabetes, stroke, obesity or poor oral health. Persons with disabilities face many health inequities.

Persons with disabilities have the same health needs as every other member of the population, including immunization, screening, sexual and reproductive health, and all other aspects of regular healthcare. They may also have additional or more complex health needs, because of impairment and the consequences of impairment. Persons with disabilities may face particular barriers in accessing needed healthcare. Not least of these is the increased likelihood of living in a situation of poverty and social exclusion, which increases both the likelihood of ill-health, and the likelihood of facing barriers to accessing healthcare.

The present report is the largest survey ever conducted in Rwanda which outlines the risks and vulnerability of persons with disability for acquiring major disease burdens such us HIV, tuberculosis, hepatitis, malaria, non-communicable diseases, and mental health. In addition, it highlights the major gaps for sexual reproductive health. Findings from this research survey show that persons with disabilities have high risks of developing these diseases health conditions comparing to the persons without disabilities. This means that a quick evidence-based interventions are needed to prevent these burden by providing access to health care and other adequate services to the persons with disabilities.

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Acknowledgement

This comprehensive research survey on the assessment of vulnerability and risks of persons with disability for acquiring HIV/AIDS, tuberculosis, hepatitis, malaria, non-communicable diseases, and mental health conditions was developed by the Umbrella of Organisations of Persons with Disabilities in the Fight against HIV/AIDS & for Health Promotion (UPHLS) in collaboration with research scientists from the University of Rwanda led by Prof. Leon Mutesa with financial and technical support from the Division of HIV/AIDS, STIs and Viral Hepatitis at the Rwanda Biomedical Centre (RBC).

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Finally yet importantly, we extend our appreciation to the Global Fund through the Government of Rwanda for fully funding of this research and their solidarity, support and commitment to promote disability rights and inclusion in health services.

Francois Xavier Karangwa
Executive Director - UPHLS
KIGALI RWANDA

Executive Summary

Persons with disabilities (PWDs) represent a significant segment of the global population, estimated to be over 1.3 billion people, or approximately 16% of the world's population. In Rwanda, as per the Rwanda Population and Housing Census V, there are 391,775 persons with disabilities in Rwanda, representing 3.4% of the total population. Persons with disabilities in Rwanda, as in many parts of the world, face significant barriers to accessing healthcare, resulting in disproportionate rates of various health issues, including HIV, communicable and non-communicable diseases. This report addresses the critical health concerns faced by PWDs in Rwanda, with a specific focus on HIV, Hepatitis B and C, Tuberculosis, Malaria, Mental Health alongside the utilization of sexual and reproductive health services.

Key Findings

1. **Low education levels:** More than a half (57.1) of PWDs in Rwanda did not complete any education level.
2. **Poor comprehensive knowledge of HIV:** Only 25.6% of PWDs have comprehensive knowledge of HIV. This may explain the higher prevalence of HIV because the PWD population have limited knowledge about HIV prevention methods.
3. **HIV testing coverage:** Respectively, 74.2% and 48.2% of PWDs ever tested and were tested for HIV in the last 12 months.
4. **Low coverage of male circumcision:** Only 30.7% of male persons with disability in Rwanda are circumcised. This coverage is very lower compared to the coverage of 56% among general population.
5. **High Prevalence of HIV:** PWDs in Rwanda are at a higher risk of HIV infection (7.6%), among PWDs aged 15 and above; this prevalence among PWDs is significantly higher compared to the general population.
6. **Towards 95-95-95 targets:** Of all PWDs tested for HIV, 79.9% of those living with HIV knew their status, 99.1% of those who knew their status are receiving sustained antiretroviral therapy (ART), and 98.8% of those on ART achieved viral suppression.
7. **Other Health Concerns:**

- **Mental Health**: PWDs in Rwanda experience higher rates of mental health issues such as schizophrenia (15.2%), anxiety (14.2%), depression (13.4%) and PTSD (12.6%) among many others.
- **Non-communicable diseases**: The results revealed higher measurements of non-communicable diseases among PWDs in Rwanda. Those measurements suggest high prevalence of NCDs, including hypertension, diabetes and cardiovascular conditions, compounded by limited access to ongoing care and regular health check-up and monitoring.

8. **Barriers to Healthcare Access:**
   - **Geographical and Physical Barriers**: Inaccessible healthcare facilities (e.g., long distances, PWDs-unfriendly infrastructure at health facilities, etc. prevent PWDs from obtaining necessary medical services.
   - **Communication Barriers**: Health care providers not trained on Lack of materials in accessible formats (e.g., Braille, sign language) limits the ability of PWDs to receive and understand health information.
   - **Economic Barriers**: Higher rates of unemployment and poverty among PWDs restrict their ability to afford healthcare.
   - **Limited data in PWDs**: Lack of health data specific to PWDs poses significant challenges to understanding and addressing the unique health needs of this population.

Recommendations

1. **Enhance Accessibility to health information and services**:
   - Implement universal design principles in healthcare facilities to ensure physical accessibility to healthcare services.
   - Provide health information in multiple accessible formats and languages.
2. **Improve Education, Awareness, and health care providers' knowledge and skills**:
   - Develop targeted education programs to raise awareness about HIV prevention and other health issues among PWDs.
   - Train healthcare providers on disability competence and the specific needs of PWDs.
3. **Strengthen Support Systems**: Establish community-based support groups to provide peer support and reduce social isolation.

4. **Policy and Advocacy**: Translate PWDs-related laws and policies into actions and advocate for reinforcement of PWDs-related existing policies and laws from health institutions to address the health needs of PWDs.
5. **Research and Data Collection**:
    - Conduct regular research to monitor the health status of PWDs and the effectiveness of interventions.
    - At health facility level, collect disaggregated data to better understand the specific health needs and challenges faced by PWDs in Rwanda.

Conclusion

Addressing the health concerns of persons with disabilities in Rwanda, particularly the high prevalence of HIV, mental health and non-communicable diseases, and addressing barriers to healthcare access requires a multifaceted approach. The recommendations to various stakeholders include enhancing accessibility, training providers, improving education and awareness, strengthening support systems, advocating for reinforcement of laws and policies, and implementation of PWDs-related researches.

Chapter One: Background

1.1. Introduction

The International Classification of Functioning, Disability and Health by World Health Organization, defines disability as "a limitation in a functional domain that arises from the interaction between a person's intrinsic capacity, and environmental and personal factors." Based on that definition, the United Nations' Report on disability and development (UN, 2019) adds that functioning occurs at three levels: body function and structures, activities and participation[1]. This definition ties up with the one provided by the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) saying that disability is a long-term physical, mental, intellectual or sensory (vision and hearing) impairment which in interaction with various barriers may hinder full and effective participation in society on an equal basis with others (UNCRPD, 2006). This may vary according to the type of disability, for example deafness or serious difficulty in hearing; blindness or serious difficulty in seeing; serious difficulty in concentrating, remembering, or making decisions because of a physical, mental, or emotional condition; serious difficulty walking or climbing stairs; difficulty dressing or bathing; and difficulty doing errands alone (e.g., visiting a doctor's office or shopping) because of a physical, mental, or emotional condition.

1.2. Global and local disability overview

According to the WHO (2022)[2], an estimated 1.3 billion people experience significant disability. This represents 16% of the world's population, or 1 in 6 of us. The same article of WHO also presents some facts showing the vulnerability of persons with disabilities:

- Some persons with disabilities die up to 20 years earlier than people without disabilities.
- Persons with disabilities have twice the risk of developing conditions such as depression, asthma, diabetes, stroke, obesity or poor oral health.
- Persons with disabilities face many health inequities.

[1] *United Nations (2019). Disability and Development Report Realizing the Sustainable Development Goals by, for and with persons with disabilities. Published by the United Nations New York, New York 10017, United States of America*

[2] *https://www.who.int/news-room/fact-sheets/detail/disability-and-health#:~:text=Key%20facts,earlier%20than%20those%20without%20disabilities.*

- Persons with disabilities find inaccessible and unaffordable transportation 15 times more difficult than for those without disabilities.
- Health inequities arise from unfair conditions faced by persons with disabilities, including stigma, discrimination, and poverty, exclusion from education and employment, and barriers faced in the health system itself. Over 1 billion people are estimated to live with some form of disability. This corresponds to about 15% of the world's population, with up to 190 million (3.8%) people aged 15 years and older having significant difficulties in functioning, often requiring healthcare services.

Results from a study conducted by UPHLS in Partnership with RBC and UNAIDS in 2022, in the City of Kigali and secondary cities of Rwanda (Muhanga, Huye, Rusizi, Rubavu, Musanze and Nyagatare Districts), showed that 7.0% of the respondents had a positive HIV test result. The results from the same study also showed that 12.8% of the respondents, at their first sexual encounter, had sex against their will.

While some health conditions associated with disability result in poor health and extensive healthcare needs, this is not the case for others. However, all persons with disabilities have the same general healthcare needs as everyone else, and therefore need access to mainstream healthcare services. Article 25 of the UN Convention on the Rights of Persons with Disabilities (UNCRPD), which is dedicated to health, reinforces the right of persons with disability to attain the highest standard of healthcare, without discrimination. In addition, very often persons with disabilities do not receive the healthcare services they need. Evidence shows that half of persons with disabilities cannot afford healthcare. Persons with disabilities are also more than twice as likely to find healthcare providers' skills inadequate.

Persons with disabilities face numerous access barriers in accessing healthcare services compared with the general population. These barriers are interrelated and similar across different settings and can be categorized broadly into those related to physical structure, transportation, finance, communication and stigmatizing attitudes.

The WHO (2023) highlights a range of factors contributing to health inequities faced by persons with disabilities, including:

- Structural factors such as stigma and discrimination in all facets of life, which affects their physical and mental health.
- Social determinants of health such as poverty, exclusion from education and employment, and poor living conditions all add to the risk of poor health and unmet health care needs among persons with disabilities.
- Risk factors like being often left out of public health interventions and information which expose them to communicable and non-communicable diseases.
- Health system such as a lack of knowledge, negative attitudes and discriminatory practices among healthcare workers; inaccessible health facilities and information; and lack of information or data collection and analysis on disability, all contribute to health inequities faced by this group.

Although "Persons with disabilities" sometimes refers to a single population, this is actually a diverse group of people with a wide range of needs. Two people with the same type of disability can be affected in very different ways. Some disabilities may be hidden or not easy to see.

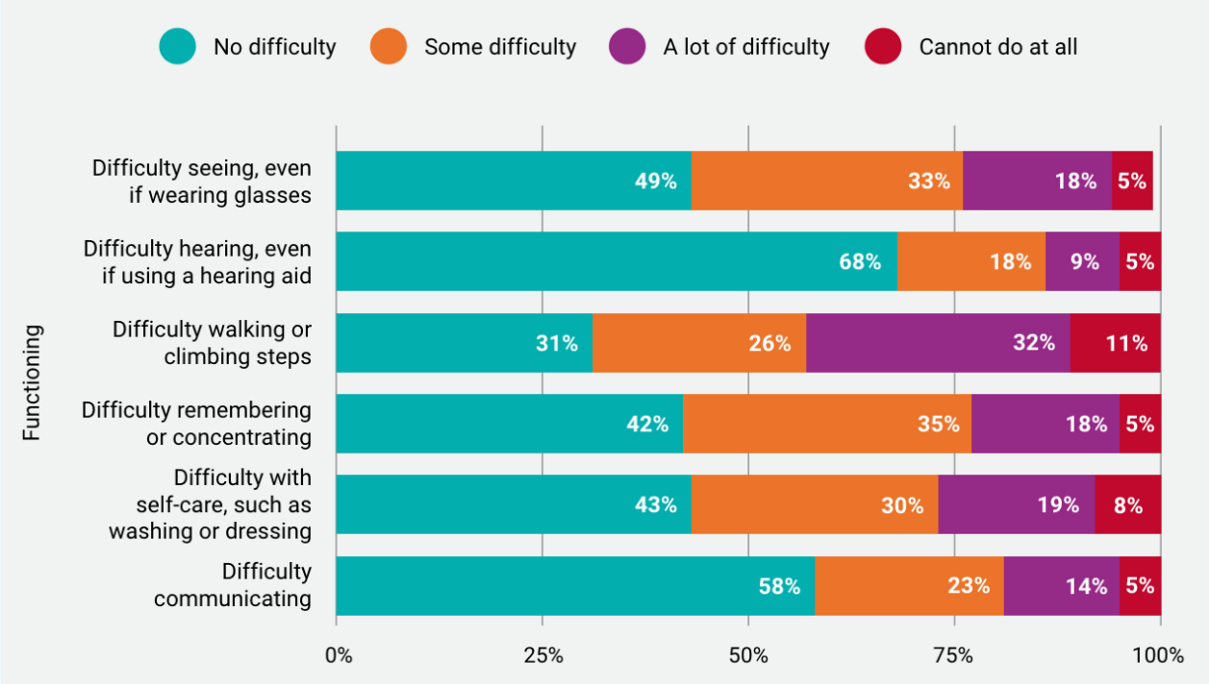
According to the World Health Organization, disability has three dimensions:

1. **Impairment** in a person's body structure or function, or mental functioning; examples of impairments include loss of a limb, loss of vision or memory loss.
2. **Activity limitation**, such as difficulty seeing, hearing, walking, or problem solving.
3. **Participation restrictions** in normal daily activities, such as working, engaging in social and recreational activities, and obtaining health care and preventive services.

A recent global survey report on persons with disabilities and disasters[3] showed that difficulty in functioning affects mostly people with hearing loss communicating skills.

[3] UN Office for Disaster Risk Reduction, Global Survey Report on Persons with Disabilities and Disasters, 2023

Figure 1: Level of functioning by type of disability



1.3. Rationale

The 2022 census data shows that Rwanda has 11,537,934 persons aged 5 years and above out of whom 391,775 (174,949 males and 216,826 females) have disability. This implies that at the national level, 3.4 % of the resident population aged 5 years and above have a disability. Similarly, the prevalence rate of disability is higher in rural areas (3.7%) than in urban areas (2.8%). The disaggregated results show that Eastern Province is the most affected with the highest prevalence of disability (3.7%). The least affected is City of Kigali (2.3%). The data indicates that only a small proportion of 0.5% of people aged 5 years and above experience severe disability, followed by 2.9 and 3.0 % of those having moderate and mild disabilities respectively. The prevalence rate of disability increases with an increase in age.

In Rwanda, despite the progress made to improve health of persons with disabilities, several questions remain unanswered about vulnerability of persons with disabilities, their risks of HIV acquisition, and the burden of TB, malaria, hepatitis, sexual reproductive health and mental health in Rwanda. Persons with disabilities in Rwanda face unique challenges in accessing health services and those challenges are attributed to a number of factors, including physical, communication, and social barriers, as well as stigma and discrimination.

Under the guidance of UPHLS and Rwanda Biomedical Center (RBC), a national survey was conducted to collect data and generate evidence for the above gaps and inform policy and practice to improve health outcomes for persons with disabilities in Rwanda.

1.4. Study Objectives

1.4.1. Main Objective

The main objective of the survey was to identify and define vulnerability of persons with disabilities and assess their risks of acquiring HIV through a comprehensive approach to HIV, TB, hepatitis, Malaria, sexual reproductive health and mental health across the country.

1.4.2. Specific Objectives

- To identify gaps in policies and unmet needs for PWDs in HIV, TB, hepatitis, Malaria, SRH and Mental health services
- To identify and define vulnerability of persons with disabilities and assess their risks of acquiring HIV, across all ages and types of disabilities.
- To understand barriers faced by persons with disabilities when accessing TB, hepatitis, Malaria, SRH and Mental health services
- To explore the linkage between HIV vulnerability and the combination of HIV, TB, Hepatitis Malaria, sexual reproductive health and mental health
- To explore the barriers that hinder the access to HIV prevention, care and treatment for PWDs/ PLHIV.
- To generate data that will help to develop evidence- based recommendations and propose solutions to identified gaps and challenges.

Chapter Two: Methodology

The survey adopted a mixed- method approach, by integrating quantitative and qualitative methods to achieve the research objectives. By conducting a thorough examination of previously published studies, articles, reports, and other relevant materials, investigators gained valuable insights and identified gaps in the existing knowledge that contributed to the discussion of findings. In addition to the desk review, using a structured questionnaire, we collected data among persons with disabilities from 50 selected sectors in 28 Districts of Rwanda.

2.1. Study design and setting

The proposed survey consisted of a cross sectional design using both quantitative and qualitative methods, collecting data across 50 sectors in 28 Districts of Rwanda. The study was stratified at disability category. Districts and sectors were randomly sampled using a pre-designed sampling frame. The study aimed to categorise research areas into two major categories:

2.1.1. The infectious/ communicable diseases category

Under this category, the study focussed on assessing the prevalence of HIV, Hepatitis B and Hepatitis C, their risk factors and the burden of TB and malaria among persons with disabilities. The study also assessed multiple burdens under the communicable diseases category.

2.1.2. The non- communicable diseases category

Under this category, the study identified and defined vulnerability of persons with disabilities in relation to sexual and reproductive health (SRH) and mental health. In terms of SRH, the study assessed SRH services utilization and identified sexual and reproductive health needs in relation to access and availability of services.

Mental health challenges for persons with disabilities were defined under common and severe mental health conditions, and were assessed using standardized mental health assessment tool known as the Patient Health Questionnaire (PHQ-9) for Depression and anxiety.

2.2. Study participants

The study included persons with disability aged 15 and above willing and able to provide informed consent to participate in the study. The study did not include children under 15 years because this study was proposed as a follow up on the similar study that was conducted in the city of Kigali and secondary cities of Rwanda to have a picture of the adult population that will inform the similar study among children with disabilities. Per definition, disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions). The study recruited participants who have: (i) mobility and physical disability, (ii) visual impairment, (iii) hearing and/or speaking impairment, (iv) intellectual disability and (v) other impairments or disabilities (little people, albinos, etc.) in Rwanda.

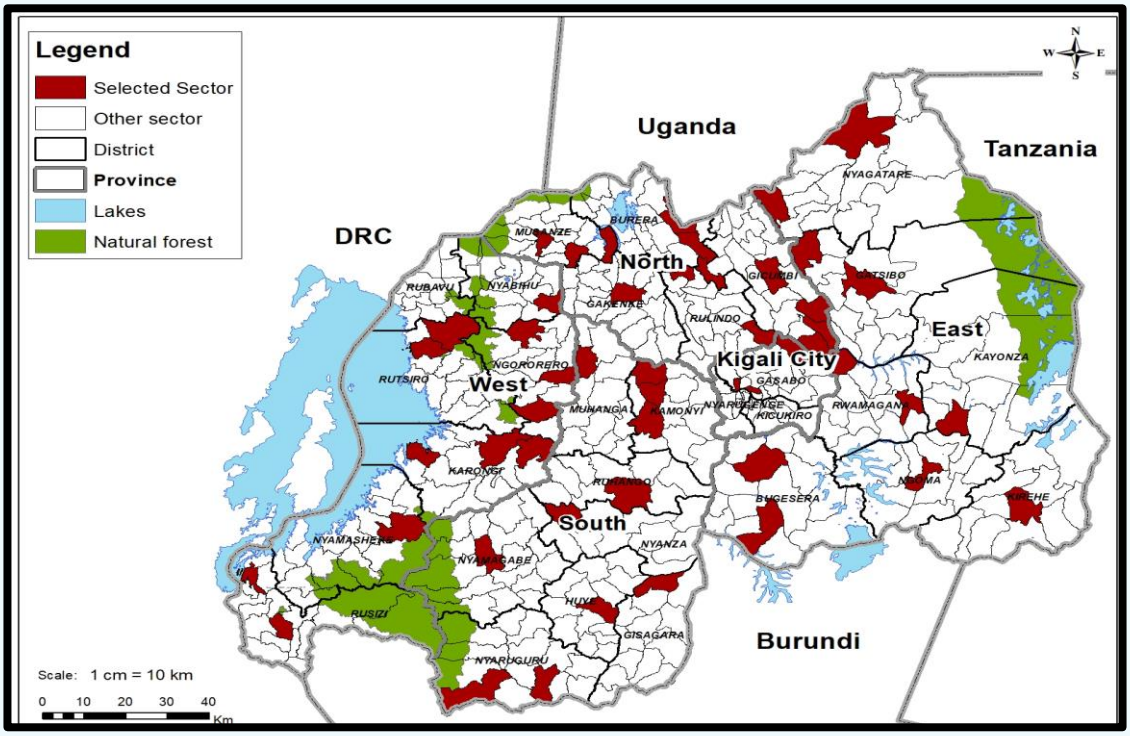
2.3.1. Sample size calculation and allocation

Multistage sampling was used. Using the database of persons with disabilities from the National Institute of Statistics, collected from the national census 2022, at the first stage, we selected sectors using the probability proportional to the size of PWDs residing in the sector. At the second stage, we randomly selected the participants. The sample size was stratified by type of disability.

Based on the national census of 2022, the number of persons with disabilities are estimated at 391,775. Assuming the HIV prevalence of HIV at 7%, the level of precision of 2% and the design effect of 1.5, we estimated the sample size of 401 for each stratum. Considering five strata of type of disability and the non-response rate of 10%, we estimated a minimum national wide sample size of 2,375 participants.

We estimated an average of 95 persons with disabilities per sector and anticipated to sample 50% of them in the selected sector; yielding a total of 50 sectors to be sampled. Using the National Population and Housing Census of 2022 sampling frame, we randomly selected 50 sectors across the country, using Stata version 17. See the Map below:

Map 1: Selected Sectors



2.3. Study procedures

2.3.1. Listing and selection of participants

The selection of the study participants was done through the collaboration with local administration, committees of the National Council of Persons with Disabilities (NCPD) at Sector Level and UPHLS regional office. We listed all PWD in the selected sectors and recorded their types of disability. The lists from all selected Sectors were compiled by the study statistician and used to sample the study participants based on the type of disability. The sampled participants were informed and invited for interview and blood draw at the nearest health centre.

2.3.2. Training of data collection team

Prior to data collection activities, a three-day training for data collection team including health care providers from health centres serving the selected sectors, and interviewers was organized to allow them get familiar with the assessment tools and master disability training necessary to navigate the community of interest of the study. The data collection team also included persons with disability and with expertise in dealing with persons with disabilities.

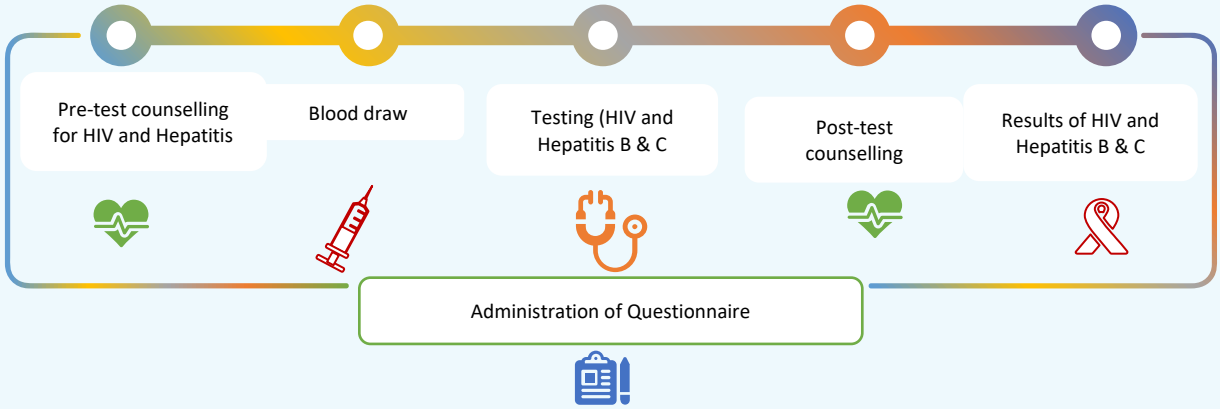
2.3.3. Biological procedures

Following their consent, the selected study participants were offered pre- and post-test counselling for HIV, Hepatitis B and C according to the national HIV, Hepatitis B and C testing Algorithms. All testing procedures took place at the nearest health centres in catchment area (i.e.: the nearest health centre to the selected study sector). The study participants who tested Positive to HIV, Hepatitis B or Hepatitis C were counselled and linked to care and treatment services for further management according to the national guidelines. For those who were already known HIV positive, we collected additional data related to care and treatment.

2.4. Data Collection

At health centre level, using a structured questionnaire, we conducted face-to-face interviews with selected persons with disabilities to collect data on their socio-demographic characteristics, HIV, TB, Malaria, hepatitis, SRH and mental health knowledge, attitudes, practices, behaviours and outcomes, and barriers to accessing and utilizing those services.

For privacy, confidentiality and logistics purposes, the interviews will take place at the nearest health centres. After obtaining the informed consent from the eligible participants, the participants went through the following steps:



For NCDs, in addition to the knowledge and service utilization questions, we took random measurement glycaemia, Body Mass Index (BMI), and blood pressure to estimate the risk of diabetes, weight-related conditions and hypertension, respectively.

For mental health, the structured questionnaire include PHQ-9, the Patient Health Questionnaire-9, which objectifies the degree of depression severity, to assess the prevalence of depression among study participants. It consists of nine questions based on the diagnostic criteria for major depressive disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM). Each of the nine questions was used to assess the frequency of a symptom over the past two weeks preceding the study.

Finally, we conducted Focus group discussions (FGDs) and in-depth interviews (IDIs) with different stakeholders and key informants, including Rwanda Biomedical Centre, Member of Parliament, UN agencies, Organizations of Persons with disabilities, Civil Society Organizations, and Health Care Providers. In total, 6 FGDs and 12 IDIs were conducted to complement quantitative data.

2.5. Data management and quality assurance

To ensure data quality, the structured questionnaire was designed in an electronic data collection software (RedCap) which could guide data collectors through the survey questions, and display helpful instructions. All survey procedures were administered using the RedCap. After the data were uploaded to the server, we conducted several layers of thorough data checks, including real time automated data quality checks and manual checks.

2.6. Statistical data analysis

Upon completion of data collection, we conducted data cleaning and analysis using Stata version 17. The qualitative data were analysed using Atlas.ti software.

2.7. Ethical considerations

Before any activity related to the study implementation, the study protocol and tools were reviewed and approved by the Rwanda National Ethics Committee. As per the RNEC approval and research ethical principles, confidentiality and anonymity of the participant's personal information were maintained. Prior to any study procedure, participants received all information related to the study and consent or ascent was

obtained from the eligible participants. Given the nature of the study population, a witness could be required, depending on the level and type of disability. For participants with visual impairment, informed consent or ascent in Braille (a form of written language for Persons with visual impairment , in which characters are represented by patterns of raised dots that are felt with the fingertips) was used while those with hearing and speaking impairments, sign language was used.

No names of the participants were collected; to distinguish the participants, only unique identifier was used. Participation was voluntary with subjects free to withdraw at any time. Apart from the compensation for transport fee, there was no remuneration to participate in the survey. The study participants were identified by the study unique code, and all forms containing any study information were kept in a locked cabinet accessible by only authorized study personnel.

Chapter Three: Presentation of Key Findings

3.1. Socio-demographic characteristics of survey participants

3.1.1. Socio demographic characteristics of participants

The socio-demographic characteristics variables included age group, gender, area of residence, type of disability, marital status, and education level.

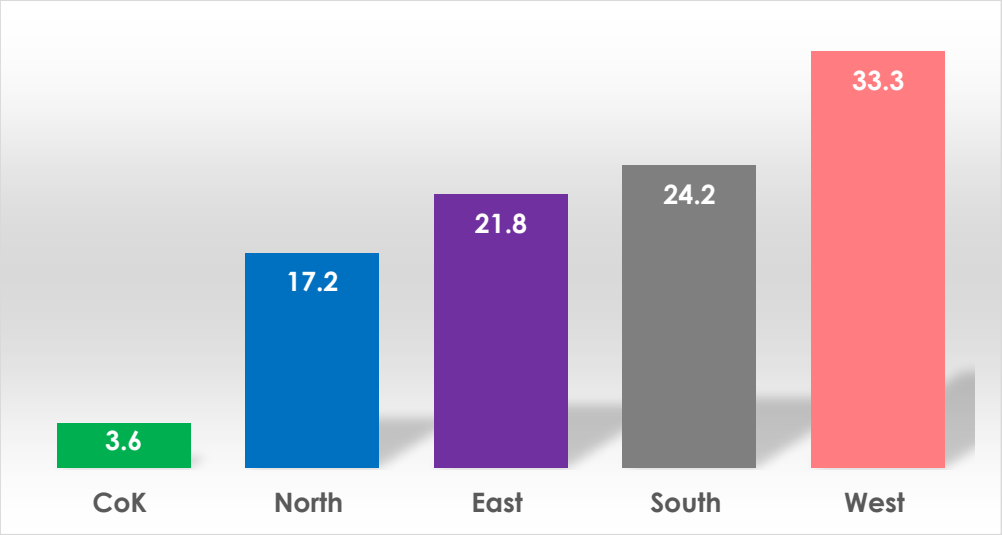
Table 1: Socio-demographic characteristics of the survey participants

Characteristics (N=2,225)	Frequency (n)	Percentage (%)
Age group		
15-24	318	14.3
25-34	309	13.9
30-34	380	17.1
44-54	356	16.0
55-64	382	17.2
65+	480	21.6
Gender		
Male	1,083	48.7
Female	1,142	51.3
Current residence		
East	486	21.8
West	740	33.3
North	382	17.2
South	538	24.2
CoK	79	3.6
Type of disability		
Physical	1,432	64.4
Visual	170	7.6
Hearing	105	4.7
Intellectual	292	13.1
Others	48	2.2
Combined	178	8.0
Marital status		
Never in union	701	31.5
married/cohabitating	1,155	51.9
Divorced/separated	120	5.4
Widowed	249	11.2
Education level		
None	1,271	57.1
Primary	628	28.2
Vocational /Ordinary level	218	9.8
Secondary and Higher level	108	4.9

The overall findings show that the majority of persons with disability were aged >54 years and the physical disability represented a large proportion (64.4%). Surprisingly, there was a high rate of low level of education (57.1%) in most of the types of disability.

3.1.1.1. Distribution of survey participants by Province

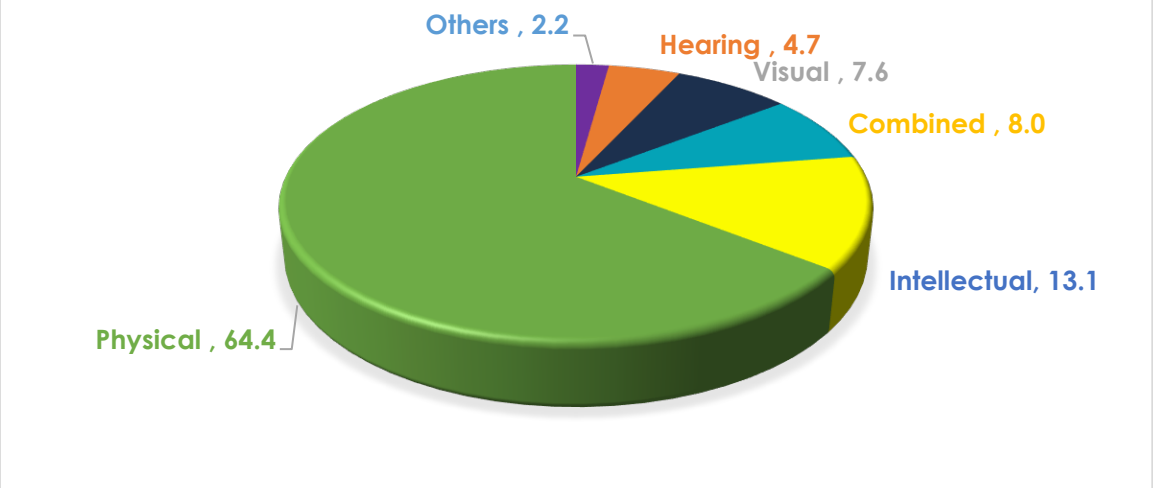
Figure 2: Distribution of survey participants by Province



The count of persons with disabilities by province reflects the geographical distribution of the population in general, with the largest number being found in the Western Province (33.3%) and the lowest in Kigali City (3.6%). This was due to the sample size estimation and allocation with proportional purpose.

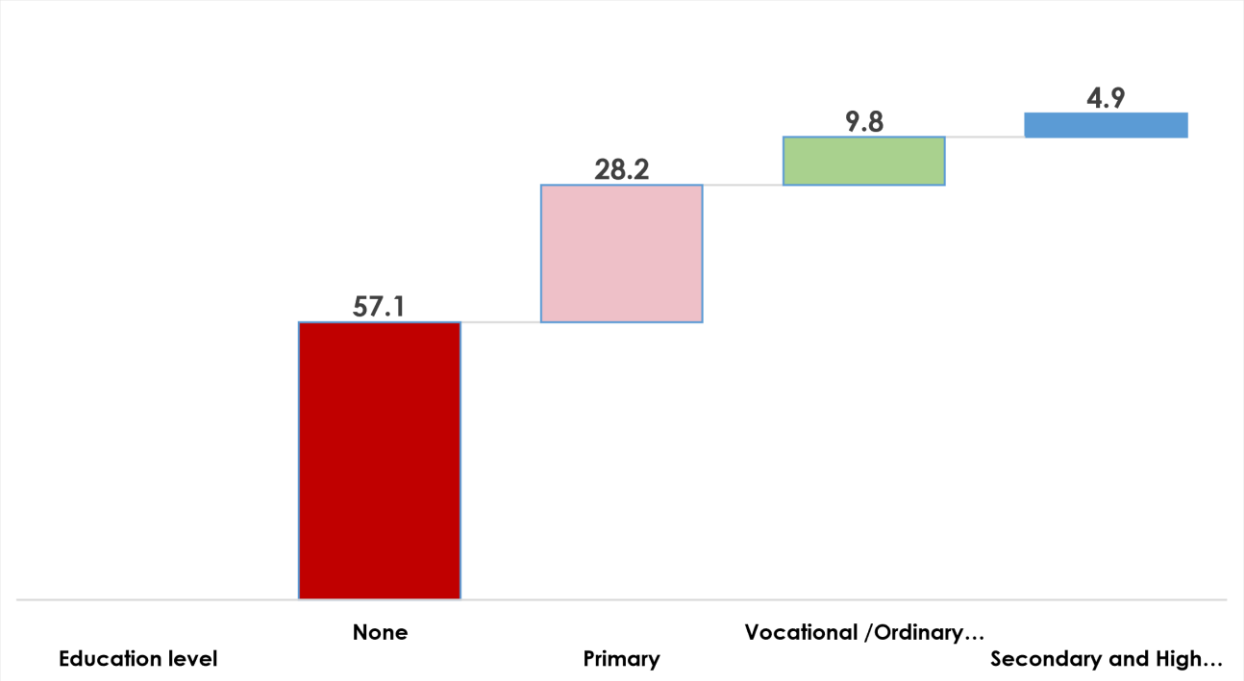
3.1.1.2. Survey participants by type of disability

Figure 3: Survey participants by type of disability



3.1.1.3. Participants by Education level (N=2,224)

Figure 4: Survey participants by completed education level



3.1.2. Socio-economic characteristics

Table 2: Socio-economic characteristics of the survey participants

Characteristics (n=2,225)	Frequency (n)	Percentage (%)
Type of occupation		
None	1,003	45.1
Student	110	4.9
Farmer	666	29.9
Small Business	126	5.7
Housekeeper	236	10.6
Other	84	3.8
Type of insurance		
None	201	9.0
RSSB-MUSA	1,980	89.0
RSSB-RAMA	39	1.8
Private Insurance	5	0.2
Number of dependents		
None	847	38.1
1-2	520	23.4
3-4	369	16.6
5+	486	21.9

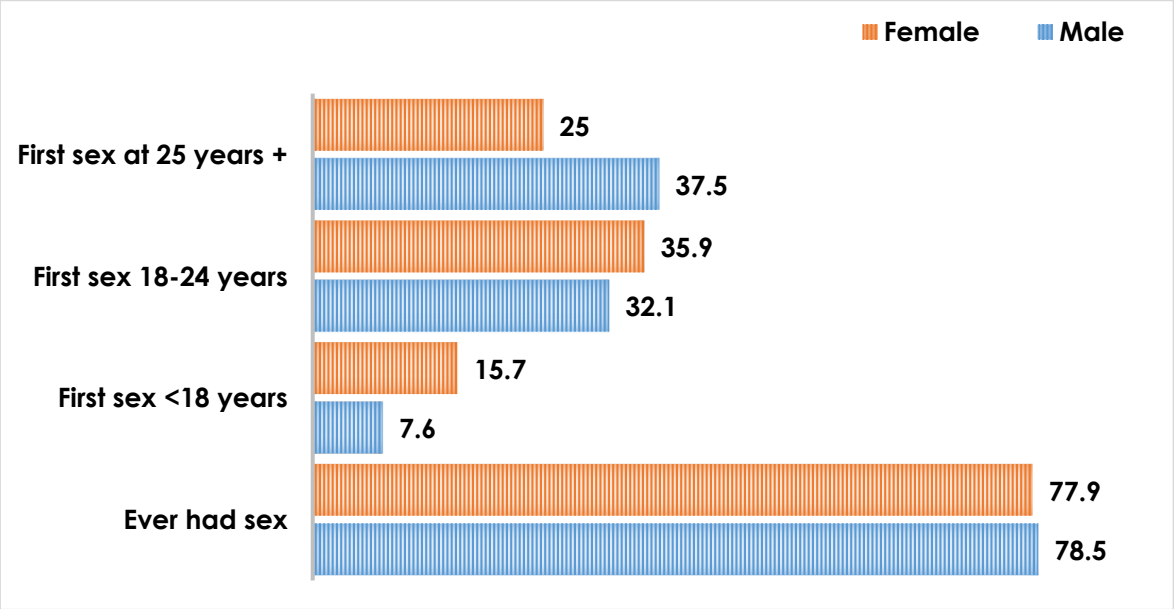
Regarding the type of occupation for persons with disability, the housekeepers and those with small business represented a high risk of acquiring different disease burdens due to their exposure. Fortunately, a large proportion of persons with disability are covered by health insurances (91%). In addition, a significant number of persons with disability (21.9%) had a huge number of dependents, which represented a considerable responsibility for them.

3.2. Sexual Behaviour

3.2.1. Age at first sex debut

Findings from this study showed that at least 15.7% of females had their first sex before age of 18, while male estimated at 7.6%.

Figure 5: Age at first sex



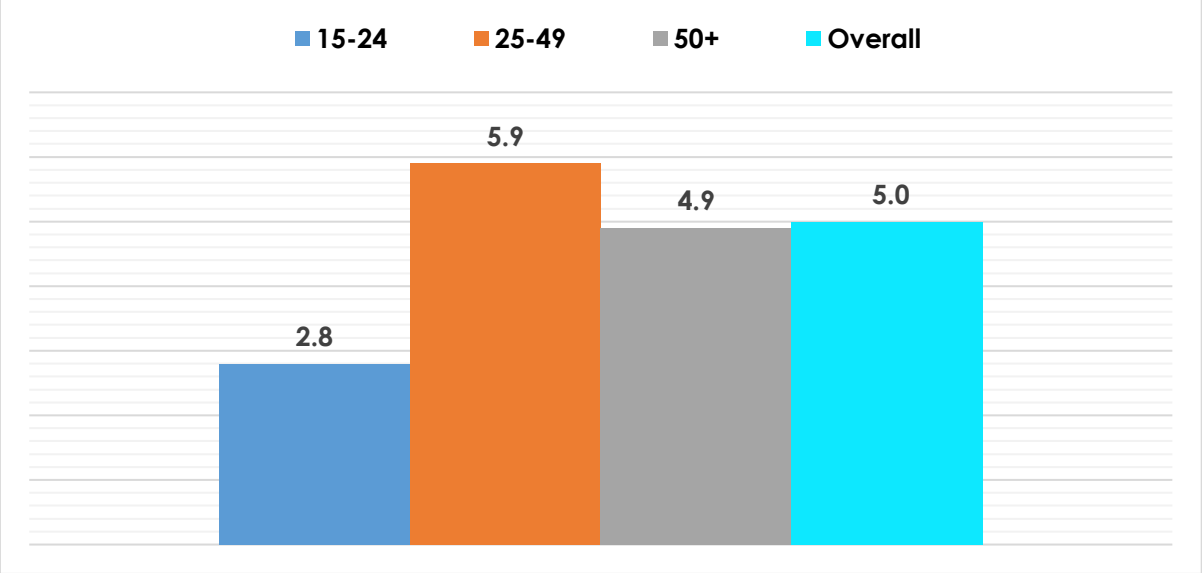
3.2.2. Commercial sex

3.2.2.1. Commercial sex in last 3 months

Overall, the study showed that 5% of all study participants, had engaged in a commercial sex in last three months; with the highest proportion among those ones aged between 25 and 49 years, representing 5.9% followed by those aged 50 years and above

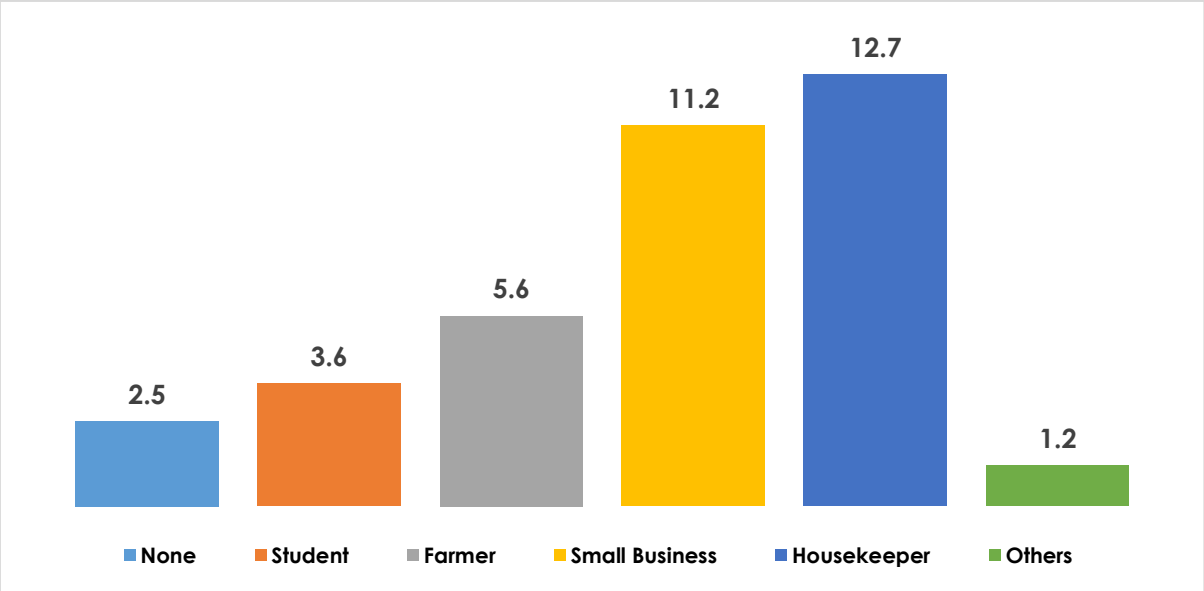
at 4.9%. The lowest proportion was recorded among participants aged 15-24 years, with a proportion of 2.8%.

Figure 6: Commercial sex in the last 3 months by age group



The findings also revealed that participants reported to be housekeepers as occupation represent the highest proportion of engaged in a commercial sex in the last three months, followed by those doing small business, farmers and students at the proportion of 12.7%, 11.2%, 5.6% and 3.6% respectively.

Figure 7: Commercial sex in the last 3 months by occupation



3.2.3. Condom use at first sex

The findings from this study also revealed that overall, 12.1% of all participants used condom at their first sexual intercourse; with the highest proportion among males representing 13.5% and females at 10.8%. When comparing by age, those aged between 15 and 24 years represent the highest proportion followed by the participants aged between 25 and 34 at 30.2%, whereas the lowest percentage is from participants aged above 65 years at 5.3%. When comparing the condom use by marital status, participants who reported to never been in union and single found to be more using condom in their first sex, followed by those reported to be married or cohabiting, then divorced or separated and widow at the proportion of 28%, 11.5%, 3.5% and 3% respectively. Considering the level of education, the participants reported to be completed their secondary and more represented the high proportion of those who used condoms at their first sex, followed by those who reported to complete ordinary level, then those who completed their primary level and finally those who reported to have not attended any school at the proportion of 25. 8%, 19.2%, 13.4%, and 8.7% respectively.

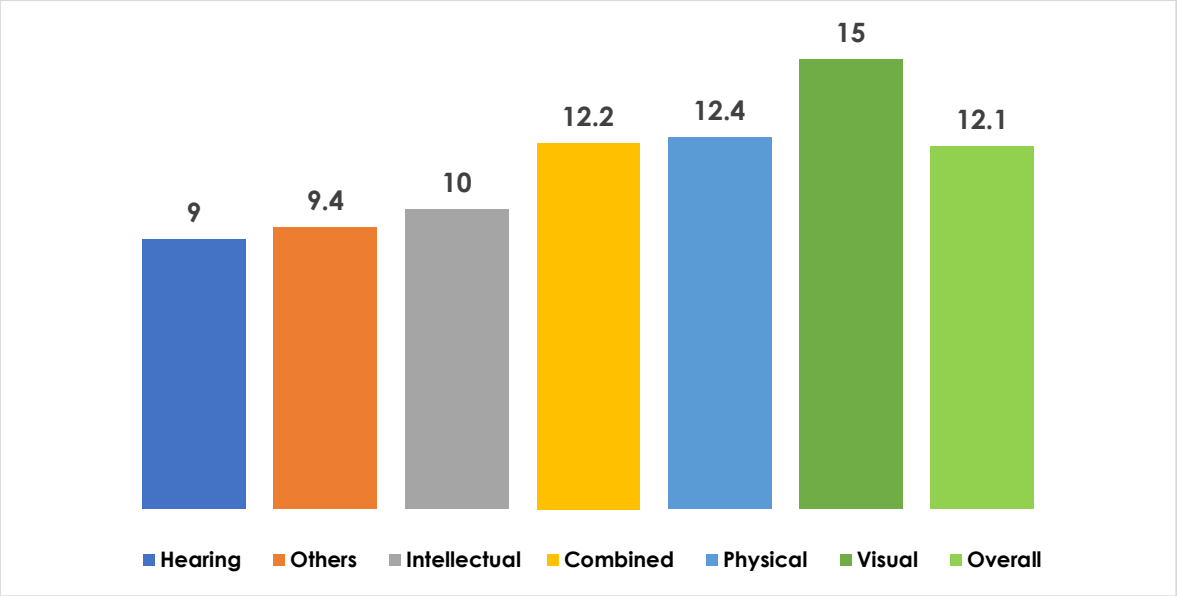
Table 3: Condom use at first sex among the survey participants

Variables	Frequency (N)	Yes Row %
Overall	**1706**	**12.1**
Age group		
15-24	59	30.5
25-34	189	30.2
30-34	317	16.1
44-54	330	9.7
55-64	360	6.9
65+	451	5.3
Gender		
Male	834	13.5
Female	872	10.8
Type of impairment		
Physical	1,205	12.4
Visual	140	15.0
Hearing	67	9.0
Intellectual	180	10.0
Others	32	9.4
Combined	82	12.2

Marital status		
Never in union	246	28.0
Married/cohabitating	1,108	11.5
Divorced/separated	115	3.5
Widow	237	3.0
Education level		
None	910	8.7
Primary	531	13.4
Vocational /Ordinary level	172	19.2
Secondary and Higher level	93	25.8

Considering the type of disability, the participants categorized by visual impairment represent the highest proportion of those who used condom at their first sex, followed by those with physical impairment, combined, mental, and hearing disability at the proportion of 15%, 12.4%, 12.2%, 10% and 9%, respectively.

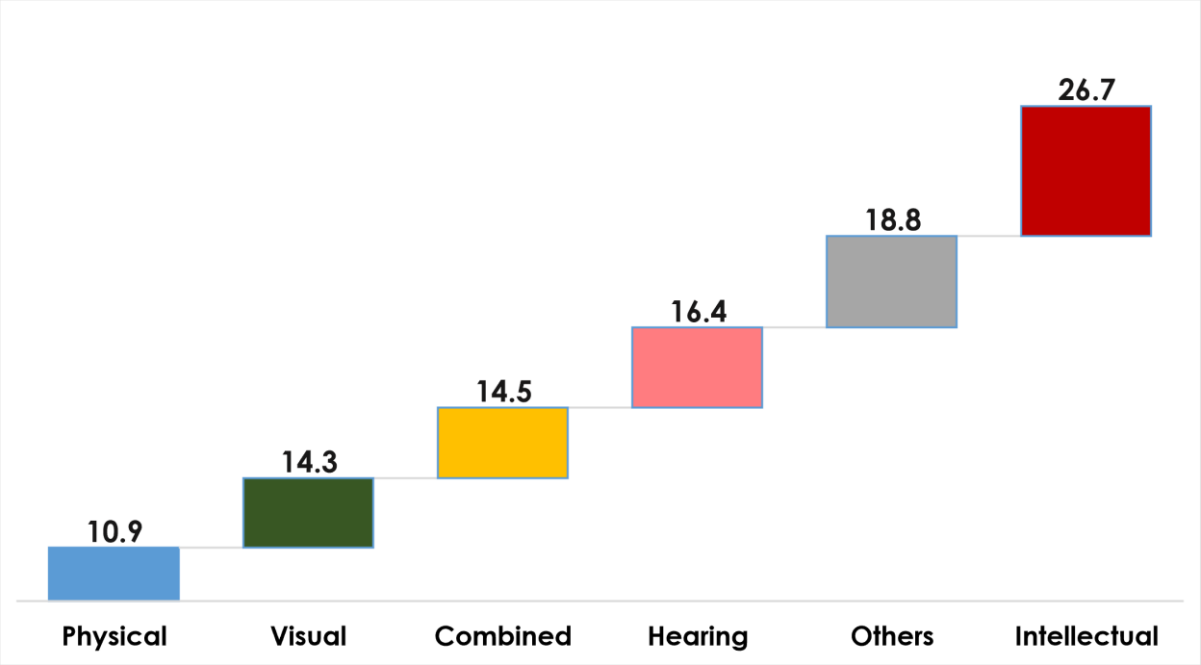
Figure 8: Condom use at first sex by type of disability



3.2.4. Sexual violence (Forced sex) at first sexual intercourse

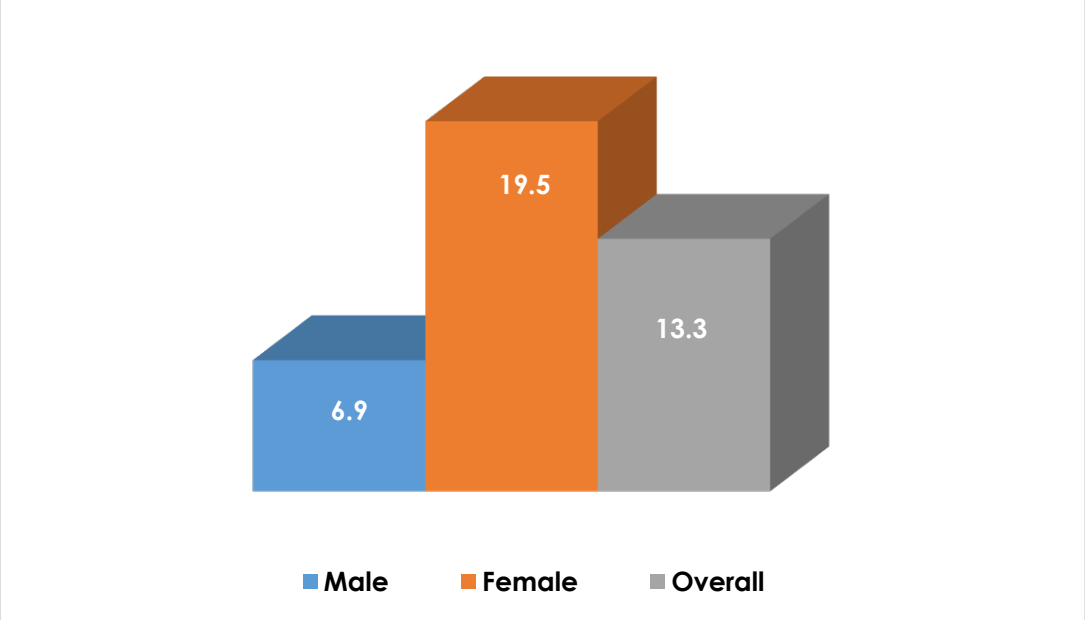
During this study, participants categorized to have a mental intellectual/mental disability reported to experienced more sexual violence in form of forced sex at their first sexual, at highest proportion, followed by Persons with hearing impairment, combined disability, visual and physical disability at a proportion of 26.7%, 16.4%, 14.5%, 14.3% and 10.9% respectively.

Figure 9: Sexual violence by type of disability



Findings again from this study revealed that female experienced more sexual violence than male at a proportion of 19.5% and 6.9% respectively, while the overall reported forced sex at the first sexual intercourse was estimated at 13.3% among all study participants.

Figure 10: Sexual violence by sex



3.2.5. Types of sexual partners in the last 12 months

The analysis of individuals reporting multiple sexual partners in the last 12 months unveils notable trends across various demographic and personal attributes. Liberally, the age group between 15 and 24 stands out with the highest percentage at 63%, followed by the 25-34 age group at 33%, causing a declining trend with older age groups such as 55-64 (5.6%) and 65+ (6.6%). Females exhibit a higher propensity for multiple partners, notably surpassing males at 16.4% versus 9.1%. Geographically, the East and South regions boast the highest percentages of individuals engaging in multiple partnerships at 15.7% and 15.5%, respectively, contrasting sharply with the city of Kigali area's lower rate of 3.6%. Strikingly, individuals with an Intellectual disability report a remarkable 25.3% engagement in multiple partnerships, eclipsing other disability categories. Furthermore, divorced/separated and widowed individuals illustrate substantial rates at 59.1% and 61.5% respectively, alongside those who were never in a union at 84%. Noteworthy gaps persist between single individuals at 84% and those married or divorced/separated at 5.1% engaging in multiple partnerships. Education emerges as a significant factor, with individuals possessing a Secondary and Higher education level displaying a striking 29.7% involvement in multiple partnerships. Students notably lead across occupation categories with a high 37.5% engagement rate, followed closely by individuals with Private Insurance showcasing the highest rate at 50%. The proportion of those with five or more dependents at a mere 3.6% delineates a contrasting trend against other dependency categories. These comprehensive findings underscore the complex interplay of varied factors shaping individuals' likelihood of engaging in multiple sexual partnerships based on diverse demographic and personal characteristics.

Table 4: Extra-marital relationship

Variables	Frequency (n)	Regular partner Row %	Multiple partners Row %
Overall	**944**	**88.1**	**11.9**
Age group			
15-24	27	37	63
25-34	109	67	33
30-34	228	90.4	9.6
44-54	216	93.1	6.9
55-64	198	94.4	5.6
65+	166	93.4	6.6

Gender			
Male	584	90.9	9.1
Female	360	83.6	16.4
Current residence			
East	198	84.3	15.7
West	370	91.4	8.6
North	167	88	12
South	181	84.5	15.5
CoK	28	96.4	3.6
Type of disability			
Physical	704	89.9	10.1
Visual	76	89.5	10.5
Hearing	34	91.2	8.8
Intellectual	79	74.7	25.3
Others	19	84.2	15.8
Combined	32	78.1	21.9
Marital status			
Never in union	81	16	84
Married/cohabitating	828	97.2	2.8
Divorced/separated	22	40.9	59.1
Widow	13	38.5	61.5
Education level			
None	427	89	11
Primary	343	91.5	8.5
Vocational /Ordinary level	110	84.5	15.5
Secondary and Higher level	64	70.3	29.7
Type of occupation			
None	299	86	14
Student	8	62.5	37.5
Farmer	407	90.9	9.1
Small Business	81	87.7	12.3
Housekeeper	90	88.9	11.1
Other	59	83.1	16.9

3.2.6. Sexually active in the last 12 months

The findings on sexual activity in the last 12 months reveal diverse trends across different demographic categories. Overall, 42.7% of respondents reported being sexually active, with notable variations observed. According to the age, individuals aged 44-54 exhibited the highest rate of sexual activity at 60.8%, while those in the 15-24 age bracket had the lowest at 8.5%. Gender disparities were evident, with males 54.2% more likely to be sexually active than females 31.7%. Marital status also played a role, as married or cohabitating individuals reported the highest percentage of sexual activity at 72.2%. Considering the occupation, farmers were the most likely to be sexually active at 61.1%.

These findings underscore the influence of factors such as age, gender, marital status, and occupation on individuals' sexual activity patterns.

Table 5: Sexually active in the last 12 months

Variables	Frequency (n)	Yes Row %
Overall	**2213**	**42.7**
Age group		
15-24	316	8.5
25-49	848	50.8
50+	1,049	46.3
Gender		
Male	1,077	54.2
Female	1,136	31.7
Current residence		
East	486	40.7
West	739	50.1
North	381	43.8
South	528	34.3
CoK	79	35.4
Type of impairment		
Physical	1,423	49.5
Visual	169	45
Hearing	104	32.7
Intellectual	292	27.1
Others	48	39.6
Combined	177	18.1
Marital status		
Never in union	697	11.6
Married/cohabitating	1,147	72.2
Divorced/separated	120	18.3
Widow	249	5.2
Education level		
None	1,264	33.8
Primary	626	54.8
Vocational /Ordinary level	216	50.9
Secondary and Higher level	107	59.8
Type of occupation		
None	999	29.9
Student	109	7.3
Farmer	666	61.1
Small Business	125	64.8
Housekeeper	230	39.1
Other	84	70.2

3.3. Knowledge and attitude about HIV

3.3.1. HIV Comprehensive knowledge

This table on comprehensive knowledge of HIV prevention methods reveals intriguing patterns among various demographic groups. Notably, individuals in the 30-34 age group and those aged 44-54 exhibit a high percentage of comprehensive knowledge at 30% and 30.3% respectively, contrasting with the lower knowledge levels found in the 15-24 age group at 17%. Males demonstrate a higher understanding at 27.8% compared to females at 22.4%, while individuals residing in the CoK area impressively highlight the highest level at 82.3%, conversely, those in the South region display the lowest at 11.5%. Those with Other disabilities lead in comprehensive knowledge at 43.8%, whereas individuals with a Hearing disability have the lowest understanding at 15.2%. Marital status also plays a role, with married/cohabitating individuals presenting at 28.8% understanding and individuals in the South region exhibiting the lowest at 11.5%. Likewise, those with a Secondary and Higher education level show the highest understanding at 46.3%, contrasting with those with no education level at 17.7%. Muslims surpass other religions with the highest level of understanding at 39.3%, while those with other occupation types lead at 47.6%, and Students trail at 19.1%. These findings underscore the importance of considering various demographic factors in understanding and improving comprehensive knowledge of HIV prevention methods within different population groups.

Table 6: HIV comprehensive knowledge

		Abstinence	Condom	Faithfulness	A healthy Looking person	Mosquito	Sharing Meal	Comprehensive knowledge
Variables	**N**	**Row %**	**Row %**	**Row %**	**Row %**	**Row %**	**Row %**	**Row %**
Over all	**2,224**	**40.4**	**72.8**	**53.6**	**81.5**	**77.9**	**78.6**	**25**
Age group								
15-24	318	32.4	67.6	42.8	58.5	82.1	73.9	**17**
25-34	308	40.9	70.1	57.1	77.6	78.9	78.9	**27.6**
30-34	380	38.7	75	53.9	84.7	79.2	80.3	**30**
44-54	356	41.6	76.7	54.5	89	80.9	81.5	**30.3**
55-64	382	44.5	74.6	61	92.4	73.6	80.6	**27.2**
65+	480	42.7	71.9	51.9	82.5	74.6	76.3	**19.2**
Gender								
Male	1,082	38.9	74.2	56	82.9	78	78.6	**27.8**
Female	1,142	41.9	71.5	51.4	80.2	77.8	78.5	**22.4**
Current residence								

East	486	31.9	76.1	55.1	85.8	83.5	88.1	**35.2**
West	740	44.3	79.2	48.6	80.1	80.5	80.8	**28.2**
North	382	51.3	78.3	46.3	82.2	71.5	75.4	**13.1**
south	537	34.8	54	58.5	77.8	71.3	66.5	**11.5**
CoK	79	41.8	93.7	93.7	89.9	93.7	96.2	**82.3**
Type of disability								
Physical	1,431	39.5	74.3	56.8	89.7	79.1	81.1	**29.4**
Visual	170	42.9	74.1	55.9	81.2	70.6	80.6	**20.6**
Hearing	105	38.1	58.1	42.9	70.5	81.9	79	**15.2**
Intellectual	292	46.2	69.9	47.6	61.6	76.7	69.5	**14.7**
Others	48	45.8	77.1	70.8	89.6	77.1	83.3	**43.8**
Combined	178	36	71.9	37.6	53.4	74.7	69.7	**12.4**
Marital status								
Never in union	700	37.9	69.1	46.1	64.3	79.4	74.1	**18.1**
married/cohabitating	1,155	40.7	74.2	58.8	92	76.8	80.5	**28.8**
Divorced/separated	120	41.7	76.7	46.7	82.5	80.8	84.2	**25.8**
widow	249	45.8	74.7	54.2	80.7	77.1	79.1	**26.5**
Education level								
None	1,271	41.5	70.9	50.4	74.1	74.2	73.8	**17.7**
Primary	628	36.3	74.5	55.3	91.6	83.3	84.9	**31.8**
Vocational /Ordinary level	217	45.2	75.1	63.1	88.5	78.8	84.3	**37.8**
Secondary and Higher level	108	41.7	80.6	63	96.3	88	86.1	**46.3**
Religion								
Catholic	1,178	38.2	69.9	51.3	81.2	76.7	77.2	**21.3**
Protestant	804	44	76.2	56	81.2	79	80.2	**28.9**
Adventist	186	38.7	73.1	56.5	84.4	78	77.4	**28**
Muslim	56	41.1	82.1	60.7	83.9	87.5	85.7	**39.3**
Type of occupation								
None	1,003	35.8	67.3	49	72.5	77.8	77.1	**20.4**
student	110	31.8	72.7	44.5	67.3	84.5	70.9	**19.1**
Farmer	666	47.3	84.1	60.2	90.8	74.9	81.8	**29**
Small Business	125	40.8	75.2	58.4	92.8	86.4	84	**37.6**
Housekeeper	236	40.3	58.5	53	89	78.8	73.3	**21.6**
other	84	52.4	85.7	64.3	96.4	78.6	86.9	**47.6**

3.3.2. Attitude towards PLHIV

The table shows the frequency and percentage of respondents who expressed positive attitudes towards people who are HIV Positive, in various categories such as age group, gender, current residence, type of disability, marital status, education level, religion, and type of occupation. The data indicates that overall, a majority of respondents showed positive attitudes across the different variables. For instance, 84.8% of respondents expressed care towards people who are HIV Positive, 73.6% were willing to keep their status secret, 80.4% were open to sharing a meal with them, 83.6% were willing to go shopping with them, 86.2% were open to teaching them, and 73.6% showed no stigma

towards them. The data also provides breakdowns of these attitudes within specific categories such as age group, gender, current residence, type of disability, marital status, education level, religion, and type of occupation. Overall, it seems that positive attitudes towards people living with HIV were prevalent across different demographic groups, with variations in percentages based on the specific category.

Table 7: Attitude towards PLHIV

		Care	Keep secrete	Sharing meal	Shopping	Teaching	No Stigma (Good Knowledge)
		yes	yes	yes	yes	yes	yes
Variables	**Frequency (N)**	**Row %**	**Row %**	**Row %**	**Row %**	**Row %**	**Row %**
Overall	**2,224**	**84.8**	**73.6**	**80.4**	**83.6**	**86.2**	**73.6**
Age group							
15-24	318	61	59.4	57.9	61.9	64.2	**59.4**
25-34	308	81.5	70.8	73.1	78.2	79.5	**70.8**
30-34	380	87.6	77.6	87.9	87.9	90.3	77.6
44-54	356	91.3	78.1	88.2	90.2	92.4	78.1
55-64	382	94.5	80.1	91.1	93.5	95	80.1
65+	480	87.9	73.1	79.8	85.4	90.2	73.1
Gender							
Male	1,082	86.6	74.5	81.7	86	86.9	74.5
Female	1,142	83.1	72.8	79.2	81.3	85.6	72.8
Current residence							
East	486	88.1	77.2	80.9	86.8	89.1	77.2
West	740	84.3	61.2	80.8	82.3	88.2	61.2
North	382	83.2	80.9	77.2	83	84.8	80.9
South	537	82.3	79.9	80.4	81	80.4	79.9
CoK	79	93.7	89.9	88.6	97.5	94.9	89.9
Type of disability							
Physical	1,431	92.6	78.5	87.8	90.9	93.2	78.5
Visual	170	87.6	73.5	84.1	87.6	91.2	73.5
Hearing	105	65.7	64.8	61.9	65.7	73.3	64.8
Intellectual	292	63.4	61	62.7	63.4	64.4	61
Others	48	97.9	85.4	91.7	93.8	97.9	85.4
Combined	178	62.4	56.7	54.5	62.4	65.2	56.7
Marital status							
Never in union	700	69.7	62.9	64.9	68	70.6	62.9
married/cohabitating	1,155	93.6	79.5	89.9	92.6	95	79.5
Divorced/separated	120	86.7	79.2	85	87.5	89.2	79.2
Widow	249	85.5	73.9	77.9	83.9	88	73.9
Education level							
None	1,271	78.5	67	72.9	76.1	79.7	67
Primary	628	93	81.8	89.8	92.8	94.9	81.8
Vocational /Ordinary level	217	91.2	83.9	90.3	94	93.1	83.9
Secondary and Higher level	108	98.1	83.3	94.4	98.1	98.1	83.3
Religion							
Catholic	1,178	84.6	76.3	80.5	84.6	86.2	76.3
Protestant	804	84.2	71.4	80.2	82.2	85.8	71.4

Adventist	186	87.1	65.1	80.1	82.8	87.6	65.1
Muslim	56	89.3	76.8	82.1	85.7	85.7	76.8
Type of occupation							
None	1,003	78.8	70.8	72.6	78	80	70.8
Student	110	69.1	69.1	69.1	70	72.7	69.1
Farmer	666	91.6	71.2	88	89.5	93.2	71.2
Small Business	125	92.8	82.4	91.2	95.2	95.2	82.4
Housekeeper	236	91.1	87.3	88.6	88.1	90.3	87.3
Others	84	94	81	89.3	92.9	97.6	81

3.3.3. Comprehensive knowledge of ARVs and PMTCT

When considering factors related to comprehensive knowledge of ARVs and PMTCT individuals in the 44-54 and 55-64 age groups exhibit high levels of understanding at 82.3% and 81.4%, respectively, while those aged 15-24 years show lower awareness at 50.9%. Males marginally outpace females in knowledge (74.9% vs. 71.1%), and participants in the Western region have a higher level of understanding at 75.8% compared to the Northern region at 61.8%. Those with physical impairments demonstrate heightened awareness at 81.2% as opposed to individuals with visual (70.6%) or intellectual impairments (51%). Education plays a significant role, with individuals holding secondary education displaying the highest knowledge at 91.7%, followed by vocational (85.1%) and primary education (83.6%). This underscores the importance of tailored educational strategies to bridge knowledge gaps across different age groups, genders, regions, impairment types, and education levels.

Table 8: Comprehensive knowledge of ARVs and PMTCT

Variables	Frequency (N)	Yes Row %
Overall	**2,221**	**72.9**
Age group		
15-24	318	50.9
25-34	307	68.1
30-34	380	79.2
44-54	355	82.3
55-64	381	81.4
65+	480	72.1
Gender		
Male	1,080	74.9
Female	1,141	71.1
Current residence		
East	486	75.3
West	739	75.8

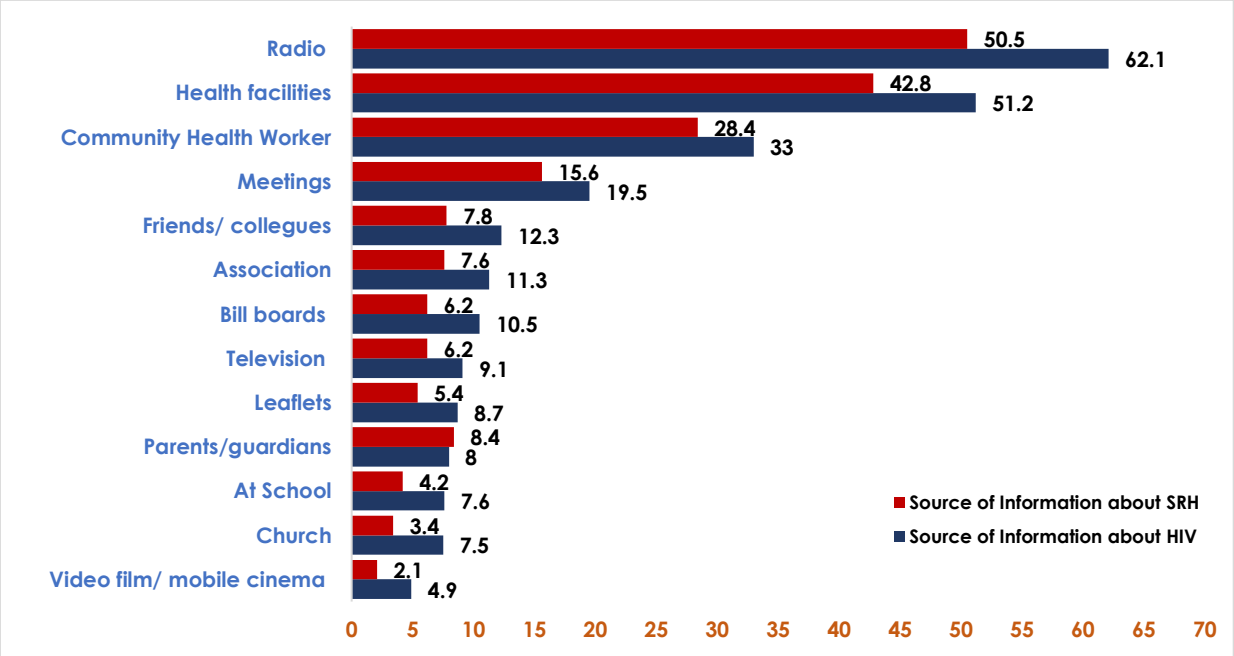
North	380	61.8
South	537	71.9
CoK	79	92.4
Type of impairment		
Physical	1,428	81.2
Visual	170	70.6
Hearing	105	55.2
Intellectual	292	51
Others	48	87.5
Combined	178	51.7
Marital status		
Never in union	699	58.1
married/cohabitating	1,153	82.2
Divorced/separated	120	75.8
Widow	249	70.3
Education level		
None	1,270	64
Primary	628	83.6
Vocational /Ordinary level	215	85.1
Secondary and Higher level	108	91.7
Religion		
Catholic	1,177	72.7
Protestant	803	73.3
Adventist	185	70.3
Muslim	56	80.4
Type of occupation		
None	1,001	65.1
Student	110	58.2
Farmer	665	79.2
Small Business	125	85.6
Housekeeper	236	83.5
Others	84	86.9

3.4. Exposure to Health-related information

3.4.1. Source of information about HIV and SRH services

Information about HIV and SRH services is very critical to the informed decision-making and utilization of those services. The study participants shared the sources of the information related to HIV and SRH services. The leading sources of HIV information are radio (62.1%) and health facilities (51.2%). The proportions look almost similar for SRH services, 50.5% via radio and 42.8% through health facilities. Another important channel of health information is the CHWs with 33.0% for HIV information and 28.4% for SRH information.

Figure 11: Source of health information



3.5. HIV Testing and ART services

3.5.1. HIV Testing Coverage

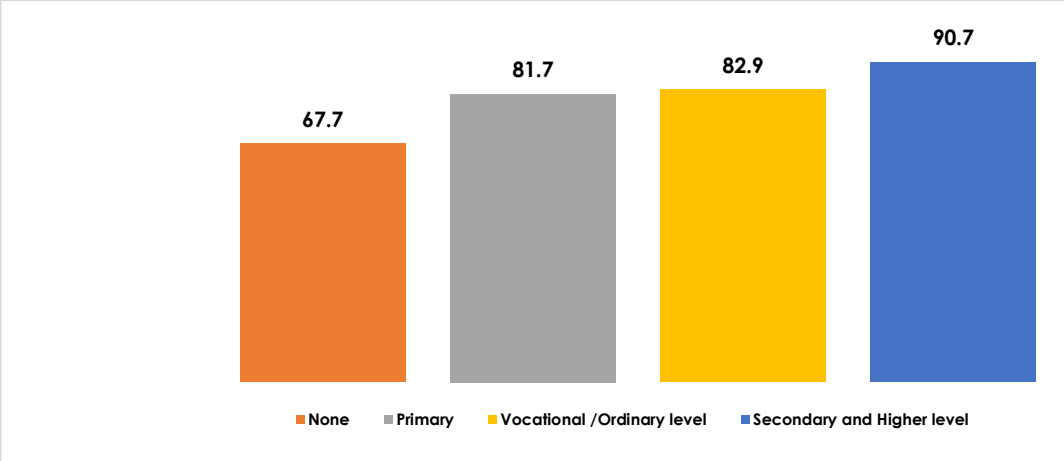
Findings pertaining to HIV testing coverage among various categories provides valuable insights into testing practices within different demographic subgroups. Individuals aged 44-54 exhibit the highest rates of ever being tested for HIV at 86.8%, while those aged 15-24 have a lower rate at 51.6%. However, when looking at recent testing within the last 12 months, the 30-34 age group stands out with 52.6% having been tested, surpassing other age groups. In terms of gender, males have a slightly higher percentage of ever being tested (75%) compared to females (73.5%). Participants residing in the West region show a significant testing rate of 80.8%, with the lowest rate observed in individuals with disabilities in the CoK category (41.8%). Marital status also influences testing behaviors, as married individuals display a high rate of ever being tested at 82.2%. Moreover, individuals with secondary education have the highest testing rate at 90.7%, emphasizing the role of education in HIV testing awareness. Among different occupations, farmers show a notably high testing rate of 86.8%. The collected data underscores the importance of tailored HIV testing interventions to address disparities in testing coverage across diverse demographic groups.

Table 9: HIV testing coverage

	Frequency (N)	Ever tested	Frequency	Tested in the last 12 months
		Row %		Row %
Total	**2,224**	**74.2**	**1,638**	**48.2**
Age group				
15-24	318	51.6	161	48.4
25-34	308	73.4	225	46.2
30-34	380	81.3	308	52.6
44-54	356	86.8	307	46.9
55-64	382	83.5	317	48.6
65+	480	67.5	320	46.3
Gender				
Male	1,082	75	807	48.7
Female	1,142	73.5	831	47.8
Current residence				
East	486	77.8	376	46.8
West	740	80.8	593	50.9
North	382	74.6	285	43.5
South	537	66.5	351	52.1
CoK	79	41.8	33	15.2
Type of disability				
Physical	1,431	79	1,121	49.2
Visual	170	73.5	125	48.8
Hearing	105	69.5	71	40.8
Intellectual	292	63.4	184	48.4
Others	48	70.8	34	44.1
Combined	178	57.9	103	43.7
Marital status				
Never in union	700	61.6	426	48.6
Married/cohabitating	1,155	82.2	943	50.6
Divorced/separated	120	81.7	98	27.6
Widow	249	69.5	171	46.2
Education level				
None	1,271	67.7	848	47.1
Primary	628	81.7	513	48
Vocational /Ordinary level	217	82.9	179	53.6
Secondary and Higher level	108	90.7	98	50
Type of occupation				
None	1,003	66.9	665	44.7
Student	110	53.6	58	53.4
Farmer	666	86.8	573	50.1
Small Business	125	86.4	107	49.5
Housekeeper	236	65.7	155	53.5
Other	84	95.2	80	48.8

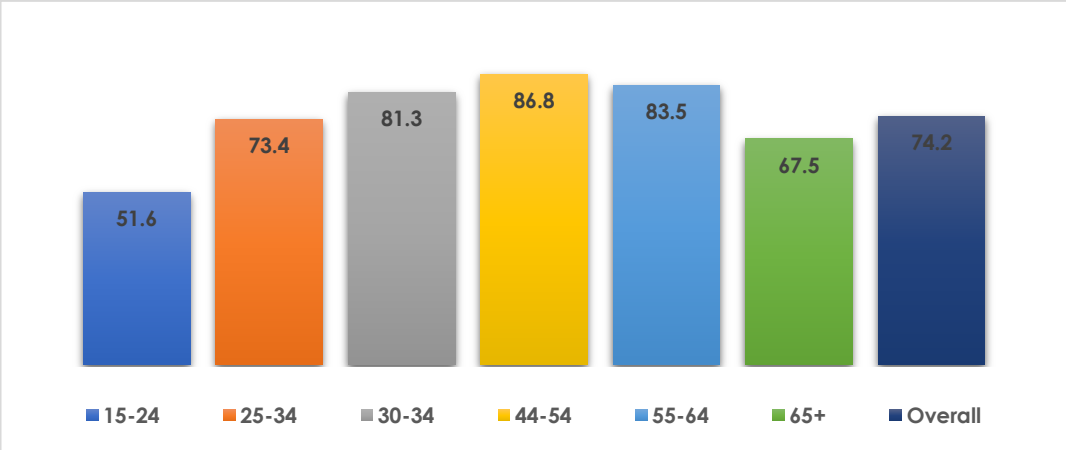
The HIV testing coverage increases with education level, 67.7% among PWDs who did not complete any education level versus 90.7% among those who completed secondary and higher levels.

Figure 12: HIV testing coverage by education level



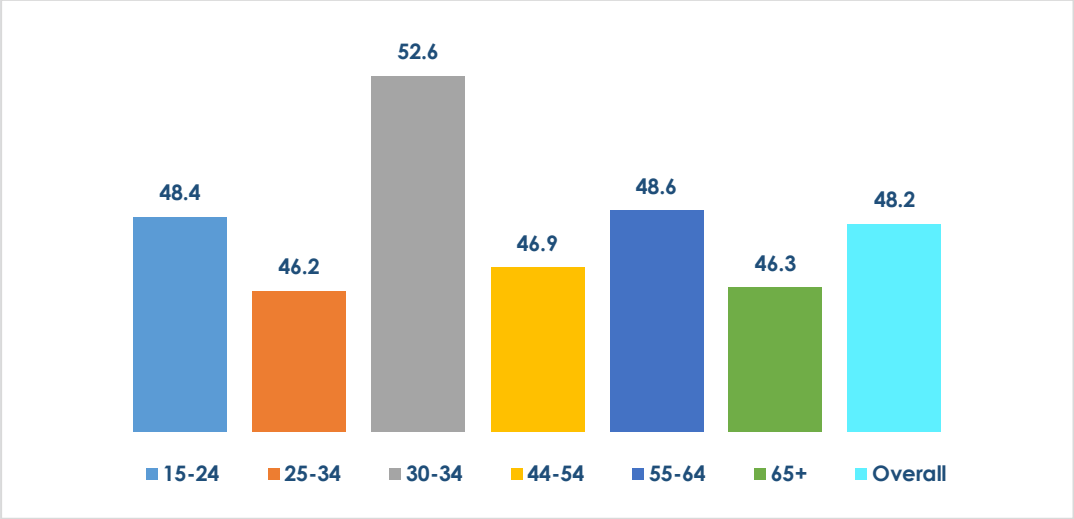
By age group, HIV coverage is higher among PWDs aged between 25 and 64 years, the ages where people are relatively active in sexuality. It is lower among younger and older people, 51.6% and 67.5%, respectively.

Figure 13: HIV testing coverage by Age group



Within the 12 months preceding the study, 48.2% of PWDs reported having tested for HIV. Those who are aged between 30 and 34 years got tested for HIV more than people in other age bands.

Figure 14: HIV testing coverage within 12 months



3.5.2. Consistent condom use in the last 3 months

The data presented showcases insights into HIV testing and condom usage patterns across various demographic categories. Notably, individuals within the age group of 55 64 exhibit the highest consistency in condom usage at 42.1%, while those aged 25-34 have the lowest consistency level at only 25%. When assessing condom usage consistency by gender, males have a higher consistent usage rate at 41.7% compared to females at 31.8%. Participants residing in the South region display the highest consistent condom usage at 46.9%, showcasing regional differences. In terms of marital status, married individuals have a relatively higher consistency rate of condom usage at 38.2%.

When looking at education levels, individuals with vocational training show the highest consistency rate at 50%, indicating a potential link between education and consistent condom use. Farmers and housekeepers also demonstrate notable consistency rates at 26.7% and 53.8%, respectively, reflecting occupation-based trends. The dataset underscores the importance of tailored interventions considering demographic characteristics to promote consistent condom usage and enhance sexual health practices across diverse populations.

Table 10: Consistence condom use

Variables	N	Consistent Row %	Not consistent Row %	Never Row %
Overall	**92**	**37**	**28.3**	**34.8**
Age group				
15-24	6	33.3	33.3	33.3
25-34	16	25.0	37.5	37.5
30-34	16	31.3	31.3	37.5
44-54	20	40.0	35.0	25.0
55-64	19	42.1	21.1	36.8
65+	15	46.7	13.3	40.0
Gender				
Male	48	41.7	25.0	33.3
Female	44	31.8	31.8	36.4
Current residence				
East	6	50.0	50.0	0.0
West	23	30.4	30.4	39.1
North	14	7.1	50.0	42.9
South	49	46.9	18.4	34.7
Type of impairment				
Physical	64	42.2	26.6	31.3
Visual	9	0.0	33.3	66.7
Hearing	3	0.0	0.0	100
Intellectual	11	36.4	36.4	27.3
Combined	5	60.0	40.0	0.0
Education level				
None	42	28.6	33.3	38.1
Primary	33	42.4	27.3	30.3
Vocational /Ordinary level	12	50.0	8.3	41.7
Secondary and Higher level	5	40.0	40.0	20.0
Type of occupation				
None	21	23.8	38.1	38.1
Student	4	25.0	25.0	50.0
Farmer	30	26.7	40.0	33.3
Small Business	10	60.0	10.0	30.0
Housekeeper	26	53.8	15.4	30.8

3.6. HIV Prevalence

3.6.1. HIV prevalence by socio-demographic characteristics

This table provides an overview of HIV prevalence across various sociodemographic factors. Notable findings include individuals aged 44-54 and 55-64 exhibiting higher HIV

prevalence rates at 15% and 11% respectively, compared to the overall prevalence of 7.6%. Females show a slightly higher prevalence at 8.2% compared to males at 7%. Those living in the city of Kigali (CoK) demonstrate a higher prevalence rate at 12.7%, while individuals in the Northern Province display a lower rate at 5.1%. In terms of types of disabilities, individuals with physical impairments have an 8.3% prevalence rate, with other categories showing lower rates. Divorced or separated individuals have a notably higher prevalence at 15.8% compared to other marital status groups. Moreover, those with secondary and higher education levels show a lower prevalence at 3.9%. Small business owners, farmers and housekeepers have prevalence rates at 14.2%, 7.7% and 10% respectively, reflecting occupation-based disparities. The number of dependents also influences HIV prevalence, with individuals with three to four dependents and 5+ exhibiting a higher prevalence at 9.2% and 9.4% respectively.

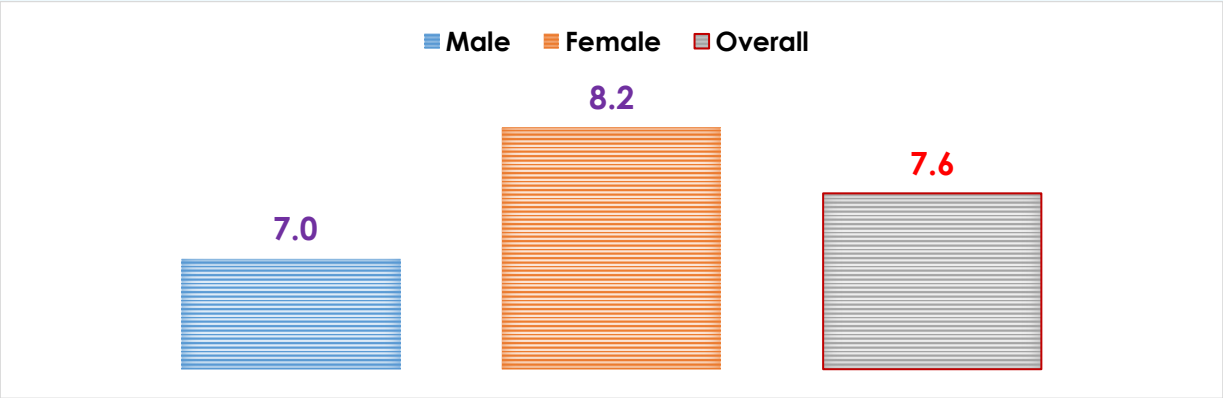
Table 11: HIV Prevalence by socio-demographic characteristics

Variables	Frequency (N)	HIV Positive Row %
Overall	**2,093**	**7.6**
Age group		
15-24	292	1.7
25-34	287	5.2
30-34	360	5.8
44-54	340	15
55-64	362	11.0
65+	452	6.2
Gender		
Male	1,025	7.0
Female	1,068	8.2
Current residence		
East	478	8.6
West	661	7.4
North	374	5.1
South	501	8.2
CoK	79	12.7
Type of disability		
Physical	1,343	8.3
Visual	162	6.2
Hearing	102	7.8
Intellectual	283	7.4
Others	45	4.4
Combined	158	5.1
Marital status		
Never in union	649	5.4
Married/cohabitating	1,091	7.9

Divorced/separated	114	15.8
Widow	239	8.8
Education level		
None	1,192	6.8
Primary	593	7.9
Vocational /Ordinary level	205	13.7
Secondary and Higher level	103	3.9
Type of occupation		
None	942	6.7
Student	95	4.2
Farmer	636	7.7
Small Business	120	14.2
Housekeeper	220	10
Other	80	6.3
Number of dependents		
None	784	5.7
1-2	490	8
3-4	349	9.2
5+	468	9.4

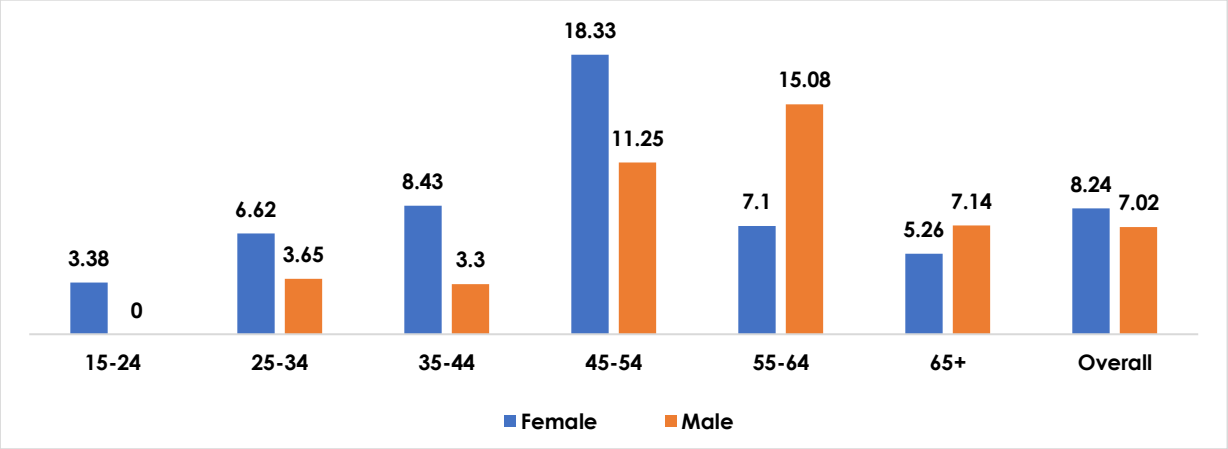
The figure below shows higher prevalence of HIV (8.2%) among females, while the overall HIV prevalence is estimated at 7.6%.

Figure 15: HIV Prevalence by Gender



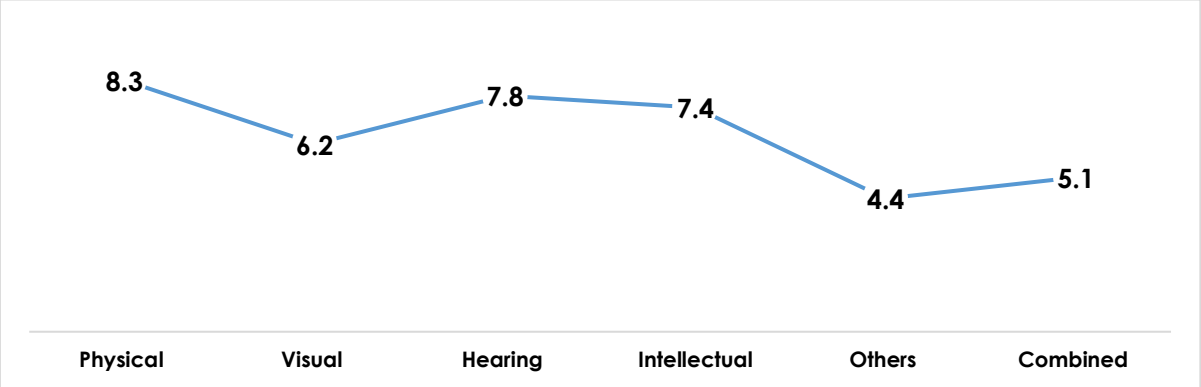
According to age and gender, the study results pointed out that the highest among female PWDs aged between 45 and 54 years, 18.3%.

Figure 16: HIV Prevalence by age group



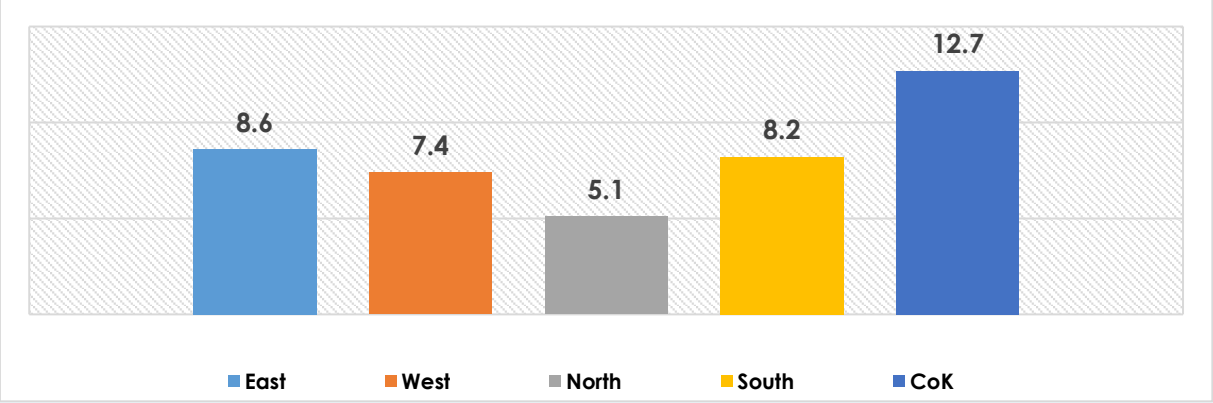
By type of disability, the HIV was prevalent among persons with physical disability (8.3%), followed by persons with hearing and speaking disabilities (7.8%).

Figure 17: HIV Prevalence by Type of disability



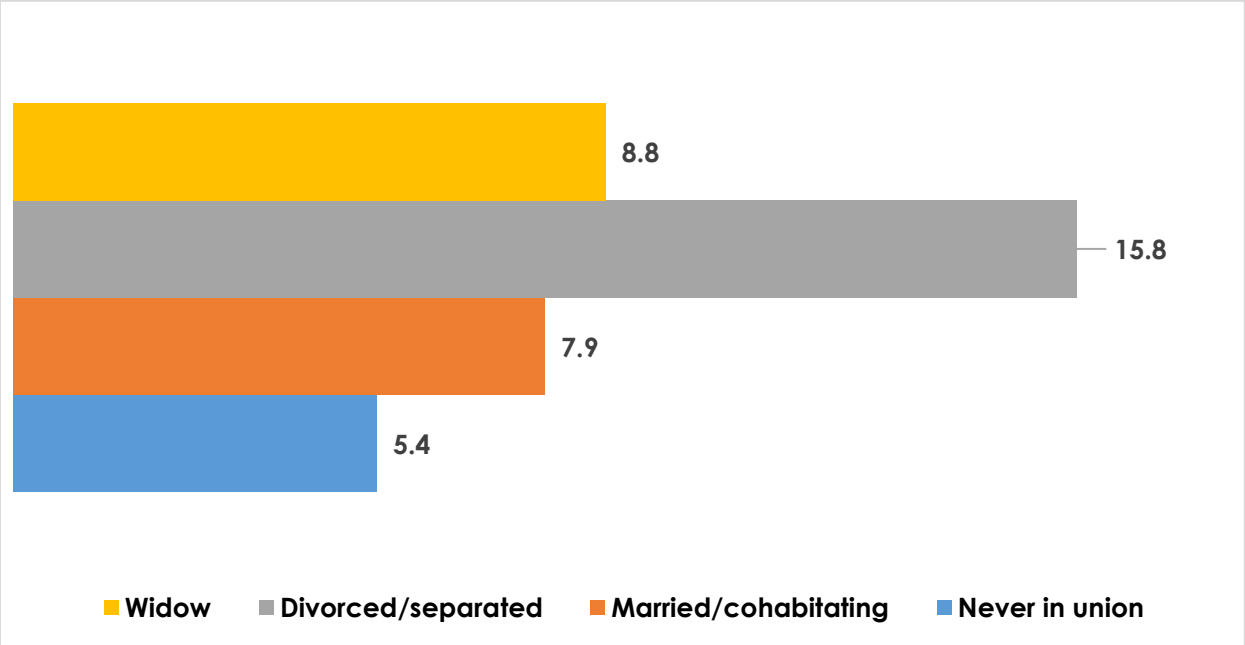
According to residence, the study revealed that the highest HIV prevalence is found in City of Kigali, standing at 12.7% while the lowest HIV prevalence is Northern prevalence with 5.1%.

Figure 18: HIV Prevalence by Province of residence



According to marital status, HIV was prevalent among PWDs who ever been in union, but who are no longer in union (i.e.: divorced/separated and widowed), 15.8% and 8.8%, respectively.

Figure 19: HIV Prevalence by Marital status



3.6.2. HIV Prevalence by Risk Behaviour

Findings on HIV prevalence based on risk behaviours provides insights into different factors influencing HIV transmission and prevalence rates. Individuals reporting being abused during their first sexual encounter exhibit a higher prevalence at 13.8% compared to those who were not abused at 8%. Engaging in sexual activity in the last 12 months shows a slightly lower prevalence at 7.1% compared to those who did not engage in sex at 8.1%. Individuals who had sex with their spouse only demonstrate a prevalence rate of 7.1%, while those engaged in extra-relationship sexual activity show a slightly higher prevalence at 7.4%. Participants involved in paid sex within the last three months exhibit a higher prevalence at 14% compared to those who did not engage in paid sex at 7.3%. Age at first sexual encounter also plays a role, with individuals below 18 years old at the time of first sex showing a higher prevalence rate of 11.3% compared to other age groups. These findings highlight the importance of addressing risky behaviours, promoting safe sexual practices, and providing support to individuals susceptible to higher HIV prevalence due to specific behaviours.

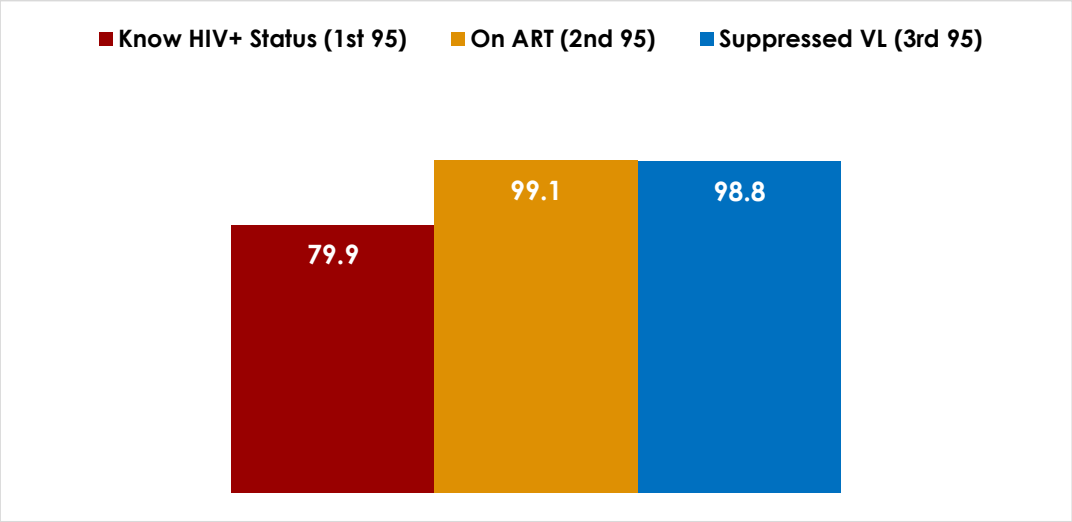
Table 12: HIV Prevalence by risk behaviour

Variables	Percent	95% CI
First sex abused		
No	**8**	[8.0,8.0]
Yes	**13.8**	[13.8,13.8]
Sex in last 12 months		
No	**8.1**	[8.1,8.1]
Yes	**7.1**	[7.1,7.1]
Whom you did sex with		
My spouse only	**7.1**	[5.5,9.1]
Extra-relationship	**7.4**	[3.7,14.1]
Paid sex in last 3 months		
No	**7.3**	[7.3,7.3]
Yes	**14**	[14.0,14.0]
Age at first sex		
Never had sex	**3.8**	[3.8,3.8]
Below 18	**11.3**	[11.3,11.3]
18-24	**8.8**	[8.8,8.8]
25/max	**7.8**	[7.8,7.8]

3.6.3. Towards 95-95-95 Targets

According to the UNAIDS 2023 report, Rwanda is among the first 5 countries that have achieved the triple 95. The study findings shows that PWD living with HIV have not been left behind except for the first 95 where the knowledge of HIV status is still at 79.9% but the rest 95s PWD on ART and viral suppression is at 99.1% and 98%, respectively.

Figure 20: Progress towards 95-95-95 HIV global targets



3.7. Male circumcision coverage

The findings regarding male circumcision coverage provides insights into the prevalence of this preventive measure across different demographic groups. In total, 30.7% of the surveyed population reported being circumcised. Within age groups, individuals aged 15-24 show the highest circumcision coverage at 45.7%, followed by those aged 25-49 at 40.2%, and individuals aged 50 and above at 18.5%. When considering current residence, individuals in the CoK display the highest coverage at 50%, whereas those residing in the North region have a lower coverage at 18.9%. Examining types of disabilities, individuals with physical impairments show a coverage rate of 34.2%, while those with intellectual disabilities have a lower coverage at 21.2%. In terms of marital status, those who have never been in a union exhibit the highest coverage at 40.9%. Education level also influences circumcision coverage, with individuals holding secondary and higher education levels having the highest coverage at 75.9%. These findings underscore the importance of understanding circumcision prevalence across different demographic groups to tailor interventions and promotion efforts effectively.

Figure 21: Male circumcision coverage by age group

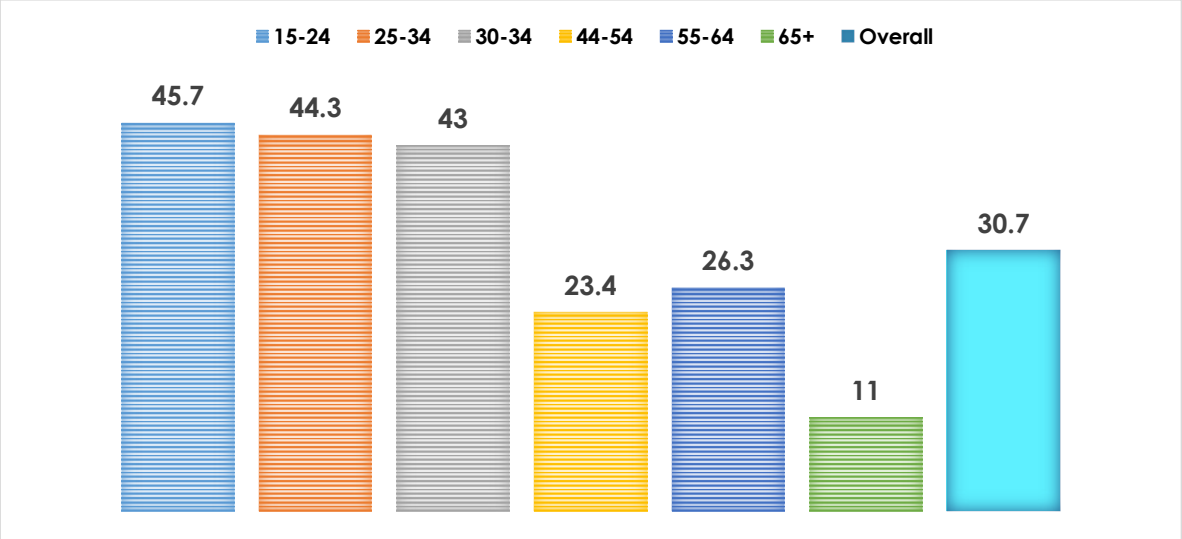


Figure 22: Male circumcision coverage by Province of residence

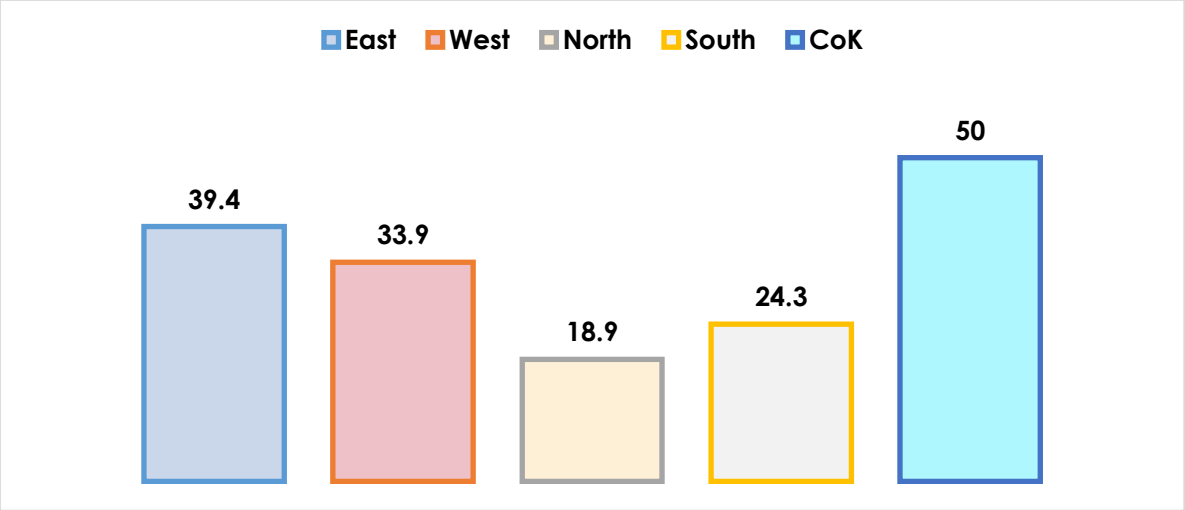
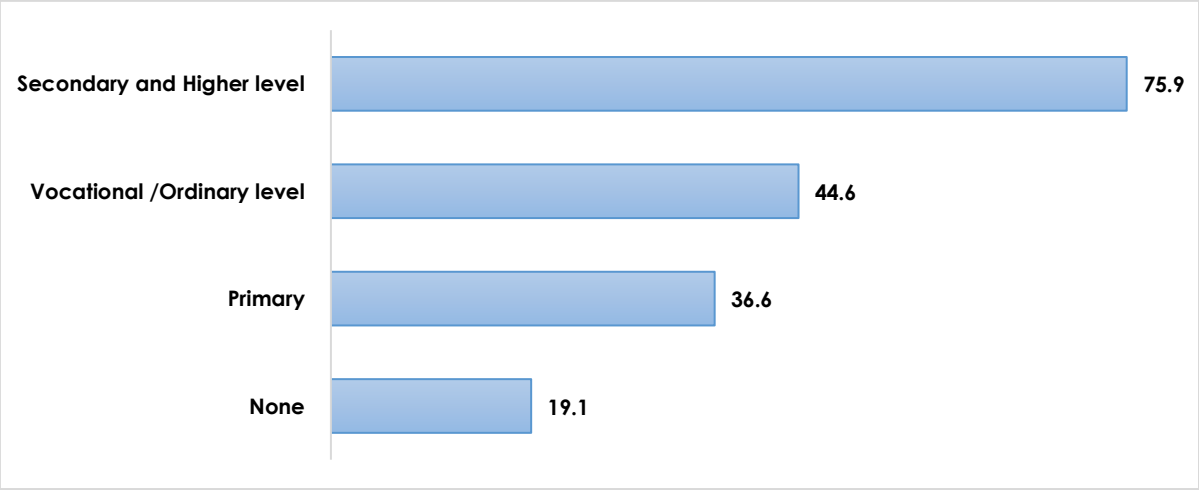


Figure 23: Male circumcision coverage by education level



3.8. Viral Hepatitis

3.8.1. Prevalence of Viral Hepatitis B and C

This study finding on hepatitis B positivity and negativity among the study participants indicates that 97.6% of the overall sample tested negative for hepatitis B, while 2.4% tested positive. Across different age groups, participants aged 15-34 had the highest rate of hepatitis B negativity at around 99%, with positivity levels as low as 1%. According to the gender, males and females had similar rates of hepatitis B negativity, with slightly higher positivity rates in males (2.7%) compared to females (2.2%). Regarding current residence, individuals in the East and North region showed the highest negativity for

hepatitis B at 98.7%. Marital status did not seem to significantly affect hepatitis B status, as both married individuals and those never in union exhibited high negativity rates. Occupation type level appeared to have some influence, with those who are housekeeper showing a higher positivity rate of 5.9%. In general, the majority of participants across various categories tested negative for hepatitis B, highlighting a trend of overall low positivity levels in the study population.

Table 13: Prevalence of HBV Ag and HCV

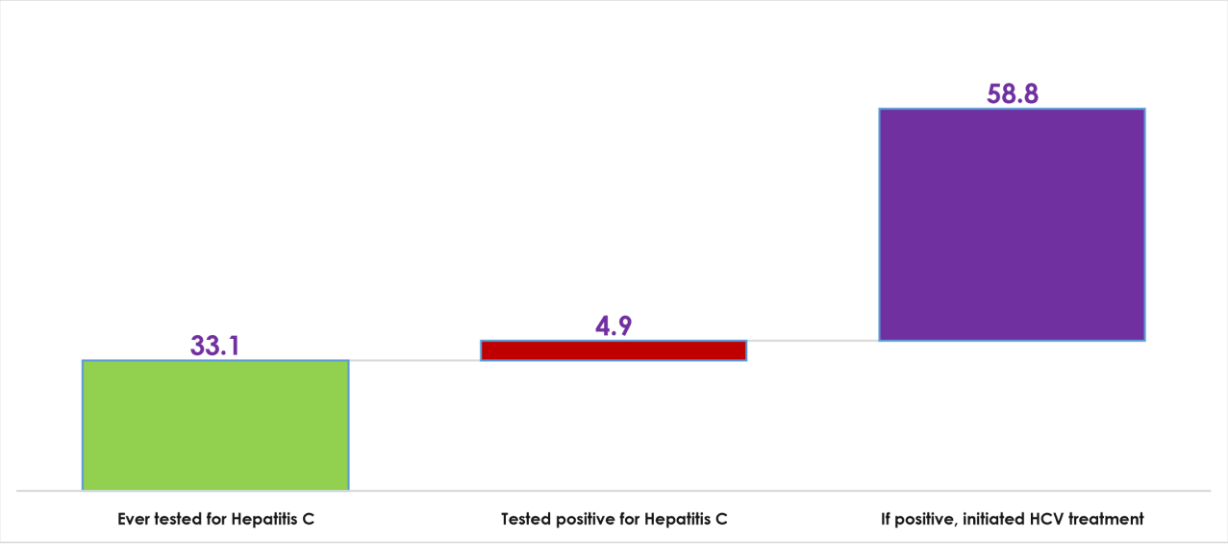
	Frequency	Hepatitis B positive Row %	Hepatitis C positive Row %
Overall	**2,091**	**2.4**	**4.4**
Age group			
15-24	292	1	1.7
25-49	803	2.1	2.7
50+	998	3.1	6.4
Gender			
Male	1,025	2.7	4
Female	1,068	2.2	4.7
Current residence			
East	478	1.3	4.4
West	661	2.9	3.9
North	374	1.3	3.7
South	501	3.8	5.4
CoK	79	2.5	3.8
Type of impairment			
Physical	1,343	2.8	4.4
Visual	162	1.9	4.3
Hearing	102	2.9	6.9
Intellectual	283	1.8	4.6
Others	45	2.2	2.2
Combined	158	0.6	2.5
Marital status			
Never in union	649	2	2.8
Married/cohabitating	1,091	2.7	4.8
Divorced/separated	114	1.8	2.6
Widow	239	2.9	7.5
Education level			
None	1,192	1.8	4.6
Primary	593	3	3.7
Vocational /Ordinary level	205	4.4	4.9
Secondary and Higher level	103	1.9	3.9
Type of occupation			
None	942	2.1	4.6
Student	95	1.1	5.3

Farmer	636	1.7	2.8
Small Business	120	3.3	4.2
Housekeeper	220	5.9	8.2
Other	80	2.5	2.5

For hepatitis C positivity and negativity among the study participants indicates that 95.6% of the overall sample tested negative for hepatitis C, while 4.4% tested positive. When examining different age groups, individuals aged 15-34 had a higher rate of hepatitis C negativity at approximately 98.3%, with positivity levels around 1.7%. Notably, the older age group of 65+ showed a higher positivity rate of 9.5%, indicating a potential age-related trend. By gender, males had a slightly higher positivity rate at 4% compared to females at 4.7%. In terms of current residence, participants in the South region had the highest positivity rate at 5.4%. Those with hearing impairments showed a higher positivity rate of 6.9% compared to other types of impairments. Marital status seemed to have some impact, with widows displaying a higher positivity rate at 7.5%. Overall, the majority of participants across various categories tested negative for hepatitis C, with some variance based on age, gender, current residence, and type of impairment.

3.8.2. HCV and HBV Cascade of Care

Figure 24: HCV Cascade of care



The table presents insights into the Hepatitis B (HBV) and Hepatitis C (HCV) cascade of care, highlighting testing, treatment initiation, and vaccination rates. Among respondents, 37.4% reported being tested for Hepatitis B, with only 5.1% testing positive and 94.9% testing negative. Of those who tested positive for HBV, 60% were initiated on

treatment. For those testing negative, 65.9% reported being vaccinated against Hepatitis B. Regarding Hepatitis C, 33.1% of respondents reported being tested, with 4.9% testing positive and 95.1% testing negative. Among those who tested positive for HCV, 58.8% were initiated on treatment. These findings highlight the importance of testing, treatment initiation, and vaccination in the cascade of care for Hepatitis B and Hepatitis C, emphasizing the need to improve awareness, access to testing, and follow-up care for individuals affected by viral hepatitis.

Table 14: HBV Cascade of care

Variables	Frequency (n)	Percentage (%)
Tested for Hepatitis B?		
Yes	824	37.4
No	1,378	62.6
Hepatitis B status		
Positive	41	5.1
Negative	770	94.9
Initiated on treatment?		
Yes	24	60.0
No	16	40.0
If negative, are you vaccinated against Hepatitis B?		
Yes	503	65.9
No	260	34.1

3.9. Other Communicable diseases

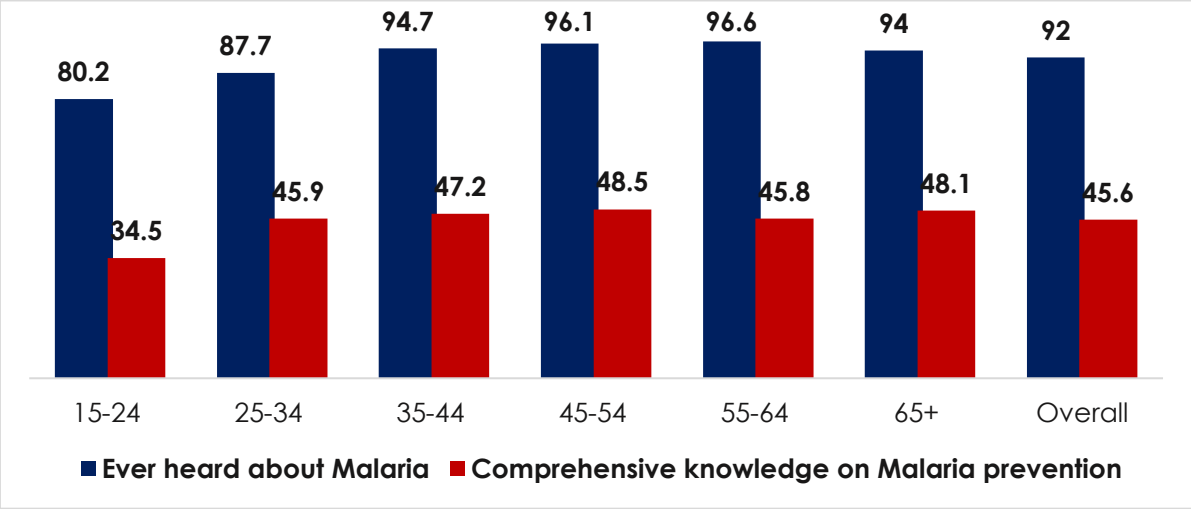
Apart from HIV, HBV and HCV, we asked the study participants about their knowledge of both malaria and TB, as communicable diseases. The level of knowledge of a disease is associated with prevention, treatment seeking behaviour and utilization of related health services. Knowledge about a health condition can significantly influence individuals' health behaviours, their engagement with healthcare services, and ultimately, their health outcomes. Conversely, a lack of knowledge can result in delayed diagnoses, poor health outcomes, and underutilization of available health services[4].

[4] Zhang, X., & Zhang, L. (2017). The impact of health literacy on health outcomes and utilization of healthcare services. Journal of Health Communication, 22(2), 180-188.

3.9.1. Knowledge of Malaria

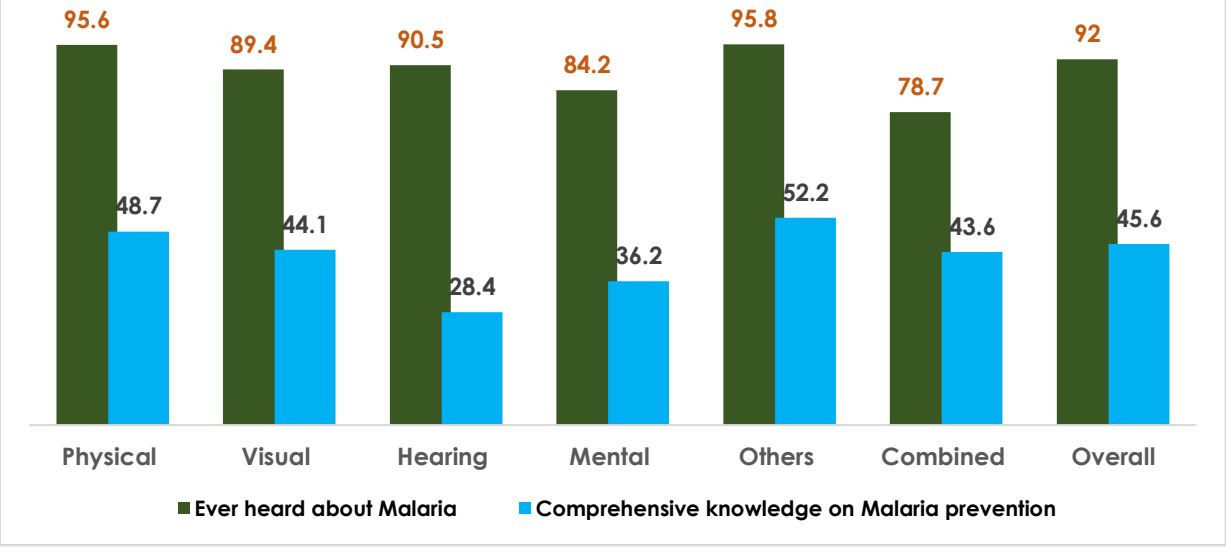
Malaria remains a public health challenge in Rwanda. For Persons with Disabilities (PWDs), additional barriers to accessing healthcare, information, and preventive measures can compound the burden of malaria. Understanding the level of knowledge about malaria among PWDs is crucial for prevention, care and treatment. Overall, 92% of PWDs in Rwanda ever heard about malaria, while only 45.6% have a comprehensive knowledge on malaria prevention.

Figure 25: Comprehensive knowledge of malaria prevention, by age



By type of disability, persons with speaking and hearing, and those with intellectual disabilities have less knowledge about malaria prevention, 28.4% and 36.2%, respectively.

Figure 26: Comprehensive knowledge of malaria prevention, by type of disability

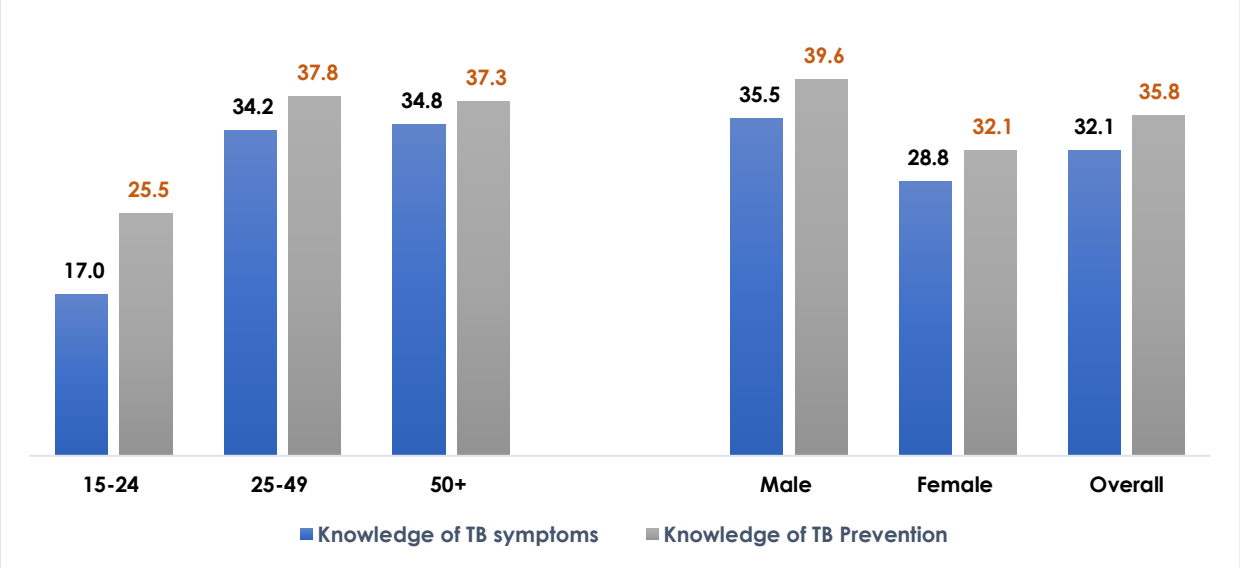


3.9.2. Knowledge of Tuberculosis

The burden of TB can be particularly severe for Persons with Disabilities (PWDs) due to various barriers they face in accessing healthcare services and information. Assessing and improving the knowledge of TB among PWDs is critical for effective disease prevention, early diagnosis, and treatment adherence.

Overall, the study showed that, both knowledge of TB symptoms and TB prevention measures are low, 32.1% and 35.8%, respectively. The findings demonstrate that male have higher level of knowledge than female, and knowledge increases by age: TB knowledge is lower among younger people and relatively higher among older people.

Figure 27: Comprehensive knowledge of malaria prevention, by type of disability



3.10. Knowledge and utilisation of Sexual and Reproductive Health Services

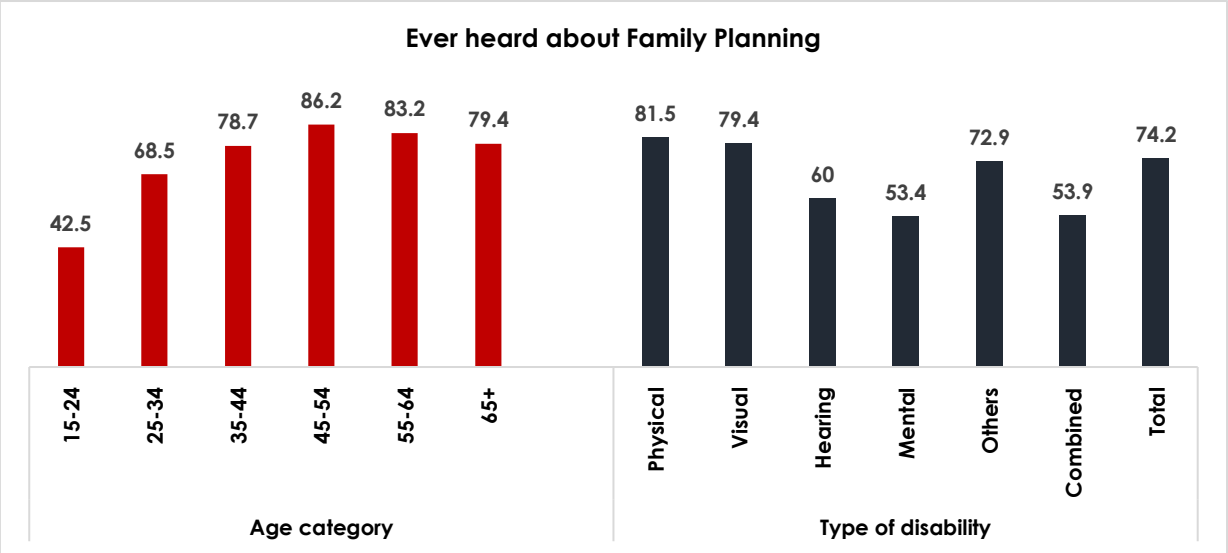
This study also sought to assess the knowledge and utilisation of sexual reproductive health services among persons with all categories of disabilities in Rwanda. In comparison to the general population, this survey showed a difference between general population and persons with disabilities on access to the SRH services due to different factors contributing to the vulnerability of persons with disabilities with many barriers including environmental and physical barriers as well as poor knowledge of services providers and persons with disabilities themselves which may create stigma and discrimination.

3.10.1. Knowledge about Sexual and Reproductive Health

Sexual and reproductive health knowledge is a critical to ensure people are making clear and informed decisions and choice about their sexual and reproductive health. Access to sexual and reproductive health services is a need from all categories of persons. This survey included questions to estimate the study participants' knowledge and utilisation of sexual and reproductive health services.

According to age groups, across all age groups, more than 65% reported that they had ever heard about family planning. By type of disability, only 53.4% of persons with intellectual disabilities reported ever heard about family planning, while the overall at this indicator was at 74.2%. This once again shows a huge gap in knowledge of family planning services which may lead to unwanted pregnancies.

Figure 28: Proportion of PWDs who ever heard about FP



3.10.2. Utilization of Family Planning Services

Family planning is a crucial component of public health that empowers individuals to make informed decisions about their reproductive health. For Persons with Disabilities (PWDs) in Rwanda, access to and utilization of family planning services are essential for their well-being and autonomy. This study showed that, at the time of the study, only 23.4% were using any method of family planning. The percentage of people using any contraceptive method increases by education level, from 17.9% among people with no education level completed to 30.9% among those who at least completed primary education level.

According to the type of contraceptive method, of those who reported using any contraceptive method, 91.4% reported that they were using modern contraceptive methods. The tables on this component are found in the Appendix section.

3.11. Mental health

3.11.1. Burden of Mental health problems

Looking at the burden of mental health problems among PWDs in Rwanda, the findings revealed that schizophrenia has the highest prevalence at 15.2%; followed by anxiety disorders that affect 14.2%; depression that is at 13.4%, bipolar disorder stands at 11.1%, epilepsy at 9.9% and drug abuse at 6.3% of the population. Those data show relatively high prevalence rates of mental health problems among PWDs in Rwanda, indicating the need for robust mental health services and support systems for that population. The table below depicts the burden of mental health conditions among PWDs by different socio-demographic characteristics.

Table 15: Burden of mental health problems

	Frequency (N)	Anxiety	Bipolar	Epilepsy	Depression	PTSD	Schizophrenia	Drug abuse
		Row %	Row %	Row %	Row %	Row %	Row %	Row %
Overall	**2,222**	**14.2**	**11.1**	**9.9**	**13.4**	**12.6**	**15.2**	**6.3**
Age group								
15-24	318	12.3	12.3	16	11	8.2	17.6	7.5
25-49	850	14.2	11.1	12.9	13.9	13.1	16	6.1
50+	1,056	14.9	10.7	5.7	13.7	13.5	13.9	6.2
Gender								
Male	1,082	11.7	9.7	8.2	10.5	10	13	5.1
Female	1,142	16.6	12.3	11.6	16.1	15.1	17.3	7.5
Current residence								
East	486	11.3	5.1	6.4	14.2	12.3	10.1	1.4
West	740	8.9	3.2	7.3	4.7	3.6	6.8	0.5
North	382	19.6	14.7	18.1	18.8	17.3	24.3	11.8
South	537	22.2	25.9	12.1	22	23.1	27.2	15.8
CoK	79	2.5	2.5	2.5	5.1	3.8	1.3	0
Type of impairment								
Physical	1,431	12	9.3	4.3	10.1	9.7	8.7	5.5
Visual	170	18.8	14.1	6.5	17.1	17.1	14.1	8.8
Hearing	105	6.7	8.6	5.7	16.2	11.4	20	7.6
Intellectual	292	22.9	20.2	31.8	28.4	23.6	46.2	11.3
Others	48	10.4	10.4	6.3	14.6	4.2	6.3	2.1
Combined	178	19.1	9	25.8	10.1	16.3	17.4	3.4

Marital status								
Never in union	700	13.7	12.1	17.3	14.7	11.7	19.3	7.6
Married/cohabitating	1,155	14.2	11.1	6.7	12.6	11.7	13.2	6.6
Divorced/separated	120	15.8	14.2	5.8	12.5	19.2	19.2	2.5
Widow	249	15.3	6.4	6.4	14.1	16.1	11.2	3.6
Education level								
None	1,271	14.8	11.8	13.1	14.6	12.4	17.5	7.2
Primary	628	12.4	9.9	4.6	12.3	11.5	12.4	5.1
Vocational /Ordinary level	217	16.6	13.4	9.2	12	18	14.3	7.8
Secondary and Higher level	108	13.9	4.6	5.6	9.3	10.2	6.5	0.9

3.11.2. Prevalence of depression

In addition to the self-reported prevalence of selected mental health conditions, using PHQ-9 (Patient Health Questionnaire-9 that objectifies the degree of depression severity), the study assessed the prevalence of depression among study participants. To measure the depression severity, we used the following PHQ-9 score interpretation: (a) 0 to 4 (less than 5): Absence of a depression, (b) 5 to 9 Mild depression, (c) 10 to 14 Moderate depression, and (d) 15 and above major depression. The findings revealed that, at the time of the survey, 33.3% of the study participants had major depression that need professional intervention. Major depression was higher among Persons with intellectual disability (60.6%), followed by PWDs with more than one disability (56.2%), PWDs without occupation (39.5%), those without education (39.4%), and those who are widowed and single (42.6% and 38.9%). According to gender, female PWDs are more depressed (38.4%) than males.

Table 16: Prevalence of depression

	Frequency	Mild depression Row %	Moderate Row %	Major depression Row %
Overall	**2,213**	**38.7**	**28**	**33.3**
Age group				
15-24	318	40.6	23.9	35.5
25-34	306	37.3	24.8	37.9
30-34	379	40.9	26.4	32.7
44-54	354	38.4	31.4	30.2
55-64	380	37.1	28.9	33.9
65+	476	38.2	30.7	31.1
Age group				
15-34	318	40.6	23.9	35.5
25-49	847	39.3	26.2	34.5

50+	1,048	37.7	30.6	31.7
Gender				
Male	1,077	42.3	29.7	27.9
Female	1,136	35.3	26.3	38.4
Current residence				
East	486	39.3	35.4	25.3
West	739	43.7	23.4	32.9
North	378	18.0	44.7	37.3
South	531	38.8	19.4	41.8
CoK	79	87.3	2.5	10.1
Type of impairment				
Physical	1,423	45.8	28.3	25.9
Visual	170	34.7	36.5	28.8
Hearing	105	43.8	28.6	27.6
Intellectual	289	13.5	26.0	60.6
Others	48	45.8	20.8	33.3
Combined	178	21.9	21.9	56.2
Marital status				
Never in union	696	36.2	24.9	38.9
Married/cohabitating	1,150	43.0	29.5	27.5
Divorced/separated	118	34.7	28.0	37.3
Widow	249	27.7	29.7	42.6
Education level				
None	1,268	32.0	28.6	39.4
Primary	622	47.6	28.1	24.3
Vocational /Ordinary level	216	47.7	25.5	26.9
Secondary and Higher level	107	48.6	24.3	27.1
Type of occupation				
None	999	32.3	28.1	39.5
Student	110	41.8	30.9	27.3
Farmer	660	39.5	28.9	31.5
Small Business	125	44.0	24.0	32.0
Housekeeper	235	56.6	19.6	23.8
Other	84	46.4	44.0	9.5

3.12. Non-communicable diseases

An estimated 1 billion people, or 15% of the world's population, have a disability, and the increase in diabetes, cardiovascular diseases (heart disease and stroke), mental disorders, cancer, and chronic respiratory illnesses, will have a profound effect on this population. According to the World Report on Disability, these diseases are estimated to account for 66.5% of all years lived with a disability in low and medium resource countries[5].

[5] The global burden of disease: 2024 update. Geneva, World Health Organization, 2023

Some Persons with disabilities may be more susceptible to developing chronic conditions because of the influence of behavioural risk factors such as lack of exercise and smoking, as well as higher rates of overweight, obesity and premature ageing.

3.12.1. Burden of NCDs

There was a significant number of self-reported persons with disabilities affected by hypertension. Other major NCD conditions including diabetes, cancer, epilepsy, and asthma were also self-reported.

The random measurements of blood pressure and blood sugar revealed a high rate of hypertension and diabetes, 26.7% and 5.9% in persons with aged 35 years and above, respectively. Surprisingly, the random measurements of body mass index (BMI) showed that the underweight and overweight were major concerns in persons with disabilities aged 35 years and above where they represented 25.5% and 10.9%, respectively. The obesity represented 3.6% in this group.

3.13. Barriers and factors contributing to the vulnerability of PWDs

Through qualitative methodology, the study identified a series of barriers that compromise access and utilization of health care services among persons with disabilities in Rwanda. Most of respondents illustrated different factors and barriers that can be categorized into informational and communication, physical, attitudinal, cultural and financial barriers:

3.13.1. Informational and communication barriers

- **Lack of accessible information**: The majority of our key informants put lack of information at first position among barriers to health care access and utilization among PWDs. They highlighted that health information is often not available in accessible formats, such as Braille, sign language, or easy-to-read text, making it difficult for Persons with disabilities to understand and navigate the health care system.

"Persons with disability have limited access to health information because of the type of formats that are used to provide information and depending on the type of disability… Sadly, it is something that people are somehow normalizing… Central and decentralised

levels always do the same mistakes, especially during different campaigns on different health interventions…" **KI working with OPD**

- **Limited health literacy**: The high proportion of PWDs who did not complete any education level, PWDs are likely to have lower health literacy due to that educational barrier, making it harder for them to understand health information and make informed decisions.

"Persons with disabilities in Rwanda have limited health literacy and health information they need to make informed decisions about their health. This exacerbates health disparities and limits access to and utilization of healthcare services. This is beyond just about reading medical information, though this remains a barrier too. Health literacy must be inclusive, recognizing the unique challenges faced by people with disabilities and ensuring that information is provided in multiple formats that are easy to understand and use." **KI working with UN agency**

"You cannot seek or use the service that you do not know… Our colleagues have limited, poor, wrong and even no information on some health services… Their knowledge about HIV, TB and Malaria preventions services is very limited. We cannot expect them to use those services; rather they will be likely to acquire those diseases…" **KI working with Organization of Persons with Disabilities (OPD)**

3.13.2. Physical Barriers

- **Inaccessible health facilities**: The majority of interviewed people at all levels pointed out the issue of physical accessibility as one of the major challenges for PWDs to have access to health care services. This is depicted in the quote below:

"It looks like many health facilities in Rwanda were not designed to accommodate persons with disabilities, given the time most of them were established… However, even when the Government started working on that, most of the health facilities did not upgrade their infrastructures and facilities… They remain inaccessible. This includes lack of ramps, elevators, accessible restrooms, and appropriate signage…" **KI and PWD working in Health Sector as HCP.**

"Healthcare facilities may lack necessary doorways and walkways, wheel chair ways, signage and accessible restrooms and some places are not easily accessed by persons with disabilities" **KI and PWD, OPDs**

- **Transportation and related additional expenses**: Another barrier that was highlighted by different key informants is the cost and limited availability of accessible transportation that makes it difficult for persons with disabilities to travel to and from health facilities. They added that public transportation systems that is used by the majority of PWDs are not equipped to accommodate them. Buses, taxis, and other forms of transport lack ramps, lifts, or spaces for wheelchairs, making it difficult for those with mobility impairments to use them when they need to travel to health facilities.

"The cost of transport itself is an issue… Plus transport that lack facilities to use those vehicles, without forgetting additional expenses related to the personal assistants or care givers to accompany them to health facilities…" **KI working with UN agency**

- **Geographical barriers**: The rural areas often have fewer health facilities, making access more challenging for persons with disabilities who may already face mobility issues, because of long distance they are required to travel.

"Persons with disabilities prefer not seeking health care services because they have to travel long distances, which in most of rural areas, the roads are not available or not in good conditions for them… the most affected by this issue are persons with physical disability and those with visual disability…" **HCP in Gakenke District.**

3.13.3. Attitudinal and systemic barriers

- **Negative attitude of healthcare providers**: Negative attitudes and discrimination from health care providers and some family members can discourage people with disabilities from seeking health care services.

"If there might be health care providers who understand our sufferings related to both disability and the disease or any other health care we need at health facility… Some of PWDs opt for not going to seek health care because of bad attitude of some health

care providers… When you cannot respond to them quickly, they tell you that they have other people to help…" **KI and PWD working in Health Sector**

- **Lack of awareness among HCPs**: Some Health care providers, especially those who were not trained on disability, may lack awareness and understanding of the specific needs and rights of persons with disabilities, leading to inadequate care. The majority of Health care providers may not receive sufficient training on disability issues, leading to gaps in knowledge and skills necessary for providing appropriate and disability-friendly health care services.

"Healthcare providers have few knowledge and skills or none to effectively communicate and support the PWDs… They use old terminologies to call or speak to PWDs, which may hurt the person seeking for healthcare…" **KI working for CSO at National level**

"The healthcare providers that we are dealing with have limited training to help us… Sometimes, I forgive them… Were they trained on communicating with us? Were they given training on appropriate terms to use when they talking to or about us? Sometimes, they show themselves having nothing to do… They may show empathy but not having something tangible to do… In many cases, they come to me asking for support because I know some sign languages… First of all, equip them with knowledge and skills about helping PWDs; I believe they will be able to appropriately help us." **KI and PWD working in Health Sector, as HCP**

3.13.4. Cultural Barriers

- **Cultural beliefs**: In Rwanda, there are some people with cultural beliefs and practices that disability is associated with satanic powers and witchcraft. This may lead to the fact that persons with disability are not helped to access health care services, rather brought to traditional healers and church leaders which sometimes lead to social exclusion or marginalization.

- **Family dynamics**: Some family members of the PWDs may feel ashamed or lack understanding of the health care needs of their relatives with disabilities, which affects their access to health care services.

"Families with PWDs may feel ashamed or consider PWDs as a burden such that it is difficult to take them to health facilities for health care services" ***HCP in Ngororero District***

"When the family has a poor understanding of disability, the PWD in that family will obviously treated that way, because most of PWDs depend on their relatives or care givers in the family. They will take them to health facility if they understand that PWDs deserve health care and they will always find excuses not to take them to health facilities if they believe PWDs do not deserve health care… This is a reality around here." ***KI and PWD working with OPD***

3.13.5. Financial barriers

- **Cost of health care services**: People with disabilities are more likely to live in poverty due to limited access to employment opportunities and the additional costs associated with disability. Given the socio-economic status of the majority of PWDs, the cost of medical care, medications and assistive devices (white cane, wheelchairs, etc.) constitutes another barrier to access and utilization of health care services. Despite the good coverage of health insurance among PWDs in Rwanda, some PWDs cannot afford the out-of-pocket expenses.

"Access to health care services have a cost to pay, this includes the cost of consultation, medication and assistive devices that most of PWDs cannot afford because disability significantly affects our ways of making money…" **KI and PWD working with CSO**

"Despite the fact that the Government and other partners, through different ways, have invested in health insurance for PWDs, especially those who are vulnerable, still, many PWDs are struggling to get the co-payment… I know many who have said bye to the paying healthcare services…" **KI and PWD working with OPD**

3.13.6. Disability as vulnerability

In addition to the barriers above discussed, a good number of key informants emphasized that disability itself constitutes a significant barrier to health care services. This encompasses a wide range of factors that can affect their physical, social, economic, educational, sexual, emotional and psychological autonomy. On this, our key informants told us:

"With disability, unless you are supported and have a fighting mind, otherwise every bad thing can happen to you… Disability itself is a barrier to not only health care but also to other opportunities…" **KI and PWD working in Health Sector, as HCP**

"Disability itself is an issue… it makes the person vulnerable. The person becomes dependant to other people, want it or not… The person loses essential autonomy: S/he will need assistive device and the assistant to help him/her put them… At the clinic, the assistant will be there… Nothing is confidential. Sometimes, we prefer not saying anything because our autonomy is threatened…. Suppose you cannot hear and speak, you will always need an interpreter… Will you be able to say that you had an extra-marital sex in the presence of the interpreter, who may be your sexual partner?" **KI and PWD working with OPD**

"With disability, you lose autonomy at all levels: we always need people to hear and speak for us… we cannot always decide by ourselves… There is always someone in between to decide what to do, where to, how to go there, what to say, how to say it… This is how HIV, NCDs and mental health conditions are prevalent in our population." **KI and PWD working with OPD**

"… Due to their disabilities, persons with disabilities are raped, and in most cases, they may not report because they do not know how and where they should report... Some other PWDs take this as a chance because they may think they are loved by the perpetrator or think they may get pregnant, something they had been waiting for without hope…" **KI and PWD working with OPD**

"If a person with disabilities is not loved by their families and when someone tells them that he/she loves them, they can easily get involved in risky sexual intercourse, which exposes them to any STI, including HIV." **KI, UN agency**

Moreover, another great number of respondents highlighted the belief of some people who rape PWDs thinking that this would cure them different diseases. Other PWDs engaged in risky sex because they want to see if it can be possible for them to have sex.

3.13.7. Recommendations to overcome barriers to health services

Following barriers discussed above, the key informants made some recommendations to address them. By addressing these barriers, there might be an improvement in accessing to health care services for persons with disabilities.

- **Accessible information in disability-friendly formats**: Providing health information in accessible formats and improving health literacy among people with disabilities.

- **Improving accessibility**: Ensuring health facilities have physical facilities that can assist PWDs to have access to health care services by adhering to policies and laws requiring them to provide disability-friendly environment. On the accessibility to health care services, our key informants shared the following:

"The first thing is to put the inclusion principle in all Government's political programs. This should be an obligation of everyone, especially health facilities, to think about persons with disabilities before implementing any interventions for general population – we are part of the general population, why are we somehow excluded?" **KI, NCPD**

"To avail infrastructure that are accessible by people with different kind of disabilities: walkways for people with physical disabilities, suitable restrooms, walkways for people with visual disabilities, signage, and medical equipment that can be used by people with disabilities." **KII, OPDs**

- **Training of Health Care Providers**: Increasing the number of HCPs receiving training on disability awareness, and sign language.

"Healthcare providers needs to be trained on how to receive and communicate with persons with disabilities… They need to change their attitude towards PWDs and be skilled enough to take good care of all persons with disabilities." **KI and PWD working in Health Sector, as HCP**

- **Financial support**: Increasing financial support and insurance coverage for health care services and assistive devices.

- **Reinforcement of policies and laws around disability**: Rwanda has good policies and laws, and regulations specifically addressing the health care needs of people with disabilities. However, they need to be fully implemented and reinforced across health sector, especially at health facilities, to improve adequate and disability-friendly health service delivery.

Chapter Four: Discussion

The present report is a comprehensive of findings from the largest survey ever conducted in Rwanda for assessing the risks and vulnerabilities of persons with disability for acquiring health diseases conditions such as HIV/AIDS, hepatitis, tuberculosis, malaria, non-communicable diseases, and mental health diseases among others.

The analysis of the health status among persons with disabilities (PWDs) in Rwanda revealed critical insights into the prevalence of HIV, Hepatitis B and C, mental health disorders, and non-communicable diseases (NCDs). The findings also demonstrated the level of comprehensive knowledge and utilization of HIV, Hepatitis B and C, Malaria, Tuberculosis, mental health, sexual and reproductive health and NCDs. The results presented in the previous chapter showed that this population faces unique challenges and vulnerabilities that require targeted interventions to improve health outcomes and quality of life.

The survey considered different aspects including socio-demographic characteristics, sexual behaviour, comprehensive knowledge and prevalence about HIV, NCDs, mental health conditions as well as access to services related to sexual and reproductive health. The persons with physical disability were majority in this survey (64.4%) but this could be due to the post-genocide consequences where the country was left with a huge number of casualties.

Education is an important condition for giving persons with disabilities the opportunity to integrate in society and become prepared for their future lives. It is a key factor in accessing economic activities, information on health, and other opportunities. Unfortunately, the high proportion of persons with disabilities (57.1%) did not complete the primary education, which is a major limiting factor for their career development.
Integration of the persons with disability in economic activities is one of the ways of facilitating them to enhance their own individual development and to contribute to the development of the country. However, some types of occupation such as housekeeping and small business expose them at high risk of acquiring disease burden due to their vulnerability related to the type of disability (*e.g.; Intellectual disability*).

Access to health care is particularly important for persons with disabilities. Fortunately, the present survey showed that 91% of persons with a disability have health insurance. The remaining uncovered 9% represent a gap to be addressed.

The comprehensive analysis paints a detailed picture of various health factors among study participants, shedding light on their sexual behaviour, knowledge of HIV prevention methods, attitudes towards HIV-positive individuals, understanding of ARVs and PMTCT, HIV testing rates, condom usage consistency, HIV prevalence rates, and risk behaviours related to HIV acquisition. The findings highlighted various demographic and personal attributes impacting these health factors. Notable trends emerged, such as age influencing sexual behaviour, education levels impacting knowledge and testing rates, gender disparities in attitudes, and occupation playing a role in HIV prevalence rates. When it comes to the exposure to health-related information, different studies demonstrated that PWDs often face unique challenges in accessing and utilizing this information effectively. Findings from this study suggest customization of health information to be accessible to PWDs, especially persons with visual, speaking, and hearing disabilities. By focusing on accessibility, inclusive communication, and training of people who develop and disseminate health messages, PWDs will receive the information they need to make informed health decisions and lead healthier lives.

Regarding multiple sexual partnerships, the data reveals a higher prevalence among younger age groups, females, individuals residing in specific regions, and those with particular disabilities. These findings align with research studies that have highlighted age and gender differentials in sexual behaviours among people with disabilities (PWDs). The higher engagement in risk behaviour among certain subgroups may point to the need for targeted interventions focusing on sexual health education and promotion of safe practices among these populations.

In contrast, the analysis of comprehensive knowledge of HIV prevention methods demonstrates variations in understanding across demographic groups. While certain age groups and education levels exhibit higher knowledge levels, disparities exist based on gender, geography, and disability status. This underscores the importance of tailored education campaigns targeting specific demographic groups to ensure widespread knowledge and awareness of HIV prevention methods among PWDs.

Moreover, the prevalence of positive attitudes towards people living with HIV indicates overall acceptance and support within the surveyed population. These findings are encouraging and align with previous research highlighting the importance of reducing HIV-related stigma and discrimination, particularly among individuals with disabilities. Positive attitudes can contribute to creating a more inclusive and supportive environment for those living with HIV.

The data on HIV prevalence among individuals with disabilities reveals disparities in testing coverage, condom usage, circumcision rates, as well as hepatitis testing and treatment outcomes. Understanding these disparities is crucial for designing targeted interventions and support services for PWD, ensuring equitable access to healthcare services and promoting better health outcomes within this population.

Overall, the study sheds light on the complex interplay of factors influencing health behaviours, knowledge levels, and attitudes towards HIV and other health conditions among people with disabilities. By identifying specific areas of concern and patterns within different demographic groups, future interventions can be tailored to address the unique needs and challenges faced by individuals with disabilities, ultimately enhancing their overall health and well-being.

The data on hepatitis B and C positivity and negativity among the study participants portrays a generally favourable scenario with a higher prevalence of negative results, indicating lower infection rates within the study population. For hepatitis B, the majority of participants, across various demographic categories, tested negative for the virus, with positivity rates remaining notably low overall at 2.4%. Interestingly, age groups like 15-34 demonstrated particularly high rates of negativity, suggesting potential protective factors in the younger population. Although there were slight variations between genders, with males showing slightly higher positivity rates, the gender divide was not significant. Geographic trends also revealed higher negativity in certain regions like the East and North. On the other hand, hepatitis C similarly showed a predominantly negative testing outcome, with only 4.4% testing positive. Noteworthy findings include the higher positivity rates among older individuals, especially those aged 65 years and above, signifying a potential age-related risk factor for hepatitis C. Variations were observed in regions, with individuals in the South showing a higher positivity rate.

Moreover, a higher rate of positivity among widows points towards the potential impact of marital status on hepatitis C risk. The insightful data regarding the Hepatitis B and Hepatitis C cascade of care further emphasizes the importance of testing, treatment initiation, and vaccination in managing viral hepatitis. With a considerable percentage of respondents being tested and the majority receiving negative results, efforts to enhance testing rates, improve treatment adherence for positive cases, and promote vaccination against Hepatitis B are essential steps in mitigating the burden of these infections within the study population. The findings underscore the need for continued awareness campaigns, accessibility to testing facilities, and comprehensive care pathways to effectively combat the spread and impact of hepatitis B and C among individuals.

Various studies demonstrated that people with disabilities are at risk of developing chronic conditions, which are called secondary conditions[6] and constitutes risk factors for malaria, TB and non-communicable diseases. They are more likely to experience unhealthy behaviours and risk factors for chronic diseases, such as an unhealthy diet, high blood pressure, obesity, and limited physical activity. These health risk behaviours increase the risk of diabetes among people with disabilities.

In regards to the knowledge and utilization of SRH services, the study revealed that there is a huge gap in knowledge of SRH services which has a significant impact on their utilization. Persons with hearing and speaking, and those with intellectual disabilities being more vulnerable than persons with physical and visual disabilities are. This suggests targeted and disability-customised intervention to raise the awareness among this population.

The findings have also revealed a Mental health problems are prevalent among persons with disabilities (PWDs), often due to a combination of biological, psychological, and social factors[7]. PWDs are at a higher risk for mental health issues compared to the general population. The data presented in this report are comparable with the WHO, CDC and American Psychological Association, that show that the most prevalent mental health problems include depression and anxiety, and Post-Traumatic Stress Disorder (PTSD). Depression and anxiety are often linked to social isolation, discrimination, and the

[6] Marge M. Secondary conditions revisited: Examining the expansion of the original concept and definition. Disabil Health J 2008; 1:67-70.

[7] https://www.who.int/news-room/fact-sheets/detail/disability-and-health

challenges of living with a disability; Post-Traumatic Stress Disorder (PTSD) may occur due to trauma related to the onset of disability (e.g., accidents, violence, etc.). Certain disabilities, such as intellectual disabilities or chronic physical health conditions, may further increase the risk of developing mental health problems[8,9,10]

The contributing factors include:

a. **Social Isolation and Stigma**:
   - PWDs often face social isolation due to physical barriers, lack of accessibility, and societal stigma.
   - Stigmatization and discrimination can lead to low self-esteem, social withdrawal, and increased vulnerability to mental health problems.

b. **Chronic Pain and Physical Health Issues**:
   - Chronic pain and other physical health problems associated with disabilities can contribute to psychological distress and mental health conditions.

c. **Economic Stress**:
   - Higher rates of unemployment and financial instability among PWDs can lead to stress and anxiety.
   - The cost of medical care and assistive devices can add to financial burdens.

d. **Lack of Access to Mental Health Services**:
   - Physical and attitudinal barriers in healthcare settings can limit access to mental health services.
   - Lack of mental health professionals trained in addressing the specific needs of PWDs.

[8] https://www.cdc.gov/mentalhealth/learn/index.htm
[9] https://www.apa.org/pi/ses/resources/publications/disability
[10] https://www.apa.org/pi/disability/resources/publications/health-disparities

Chapter Five: Conclusion and Recommendations

The present study conducted among persons with disabilities in Rwanda has provided valuable insights into the understanding of prevalence and impact of various health conditions, including HIV, Hepatitis B and C, mental health disorders, and non-communicable diseases (NCDs). The findings highlight significant health disparities and barriers faced by this population, underscoring the need for targeted, customised, inclusive and disability-friendly interventions.

At socio-demographic level, the study showed a huge gap in education: the percentage of persons with disability who have attended school and completed the primary education shows a major gap (57.1%). This calls for immediate action to address this challenge and thus contribute to the career development of persons with disability. In addition, the study informational gap on HIV (26.3%) and other health conditions, which constitutes a vulnerability, factor to the acquisition of related diseases and lower utilization of health care services.

The study revealed high prevalence of health conditions. Persons with disabilities in Rwanda experience higher prevalence rates of HIV, Hepatitis B and C, mental health disorders, and NCDs compared to the general population. This indicates a critical need for tailored health services. The high prevalence of HIV, HBV and HCV, NCDs and mental health conditions among persons with disabilities highlights additional health challenges that require attention.

In terms of access, utilization and vulnerability, the study identify various barriers to accessing health care services. Those barriers include physical, financial, and social barriers that significantly impede access to essential health care services for persons with disabilities. Of those barriers, the following were raised by most of the key informants: inaccessible health information and facilities, high costs of care, lack of transportation, limited health literacy, poor training and attitude of health care providers, and poor family support.

Addressing health problems among persons with disabilities requires a multifaceted approach that includes improving accessibility, training healthcare providers, integrating

services, and fostering supportive communities. Informed by the study findings, below are key recommendations to improve access to health care services, from awareness to the services utilization.

Based on the study findings, the following recommendations are proposed to improve health outcomes for persons with disabilities in Rwanda:

To the Ministry of Health and Health Facilities

1. **Enhance accessibility to health information and services**:
    - Implement universal design principles in healthcare facilities to ensure physical accessibility to healthcare services.
    - Provide health information in multiple accessible formats and languages, considering all types of disabilities.
2. **Improving accessibility:**
    - Ensure health services are physically accessible and provide accommodations for various disabilities (e.g., sign language interpreters, accessible information formats), by improving infrastructure through the upgrade of health facilities to be physically accessible, including ramps, elevators, restrooms...
3. **Training for healthcare providers:**
    - Train health professionals in disability competence to understand the unique challenges faced by PWDs.
    - Promote empathy and awareness among healthcare providers to reduce stigma and improve the quality of care.
4. **Expand access to preventive and treatment services:**
    - Ensure that HIV, Hepatitis B and C, NCD, malaria, TB and mental health conditions prevention, testing/screening, and treatment programs are accessible and tailored to the needs of persons with disabilities.
5. **Strengthening the integration of mental health and NCDs care into primary care:**
    - Use a holistic approach to treat both NCDs and mental health conditions concurrently.
6. **Design, implement and support community-based support model:**

- Develop community-based programs and peer support networks to reduce social isolation and provide emotional support.
- Involve family and caregivers in health care to create a supportive environment.

7. **Research and Data Collection:**
   - Conduct regular research to monitor the health status of PWDs and the effectiveness of interventions.
   - At health facility level, collect disaggregated data to better understand the specific health needs and challenges faced by PWDs in Rwanda.
8. **Policy and advocacy:**
   - Advocate for PWDs laws and policies enforcement, from papers into actions and monitoring their implementation, especially at health facilities and in the community to ensure equal access to health services for PWDs.
   - Promote public awareness campaigns to reduce stigma and discrimination.

By implementing these recommendations, Rwanda can make significant strides towards creating a more inclusive health care system that effectively addresses the needs of persons with disabilities.

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Appendices

Appendix 1: List of Tables

Table 17: First Sex intercourse

		Ever Had Sex	Below 18	18-24	25 +
Variables	**N**	**Row %**	**Row %**	**Row %**	**Row %**
Overall	**2,224**	**78.2**	**11.7**	**34**	**31.1**
Age group					
15-24	318	19.7	8.2	9.7	1.3
35-49	850	78.2	11.5	34.2	31.1
50+	1,056	95.5	13	41.2	40.1
Gender					
Male	1,082	78.5	7.6	32.1	37.5
Female	1,142	77.9	15.7	35.9	25
Current residence					
East	486	80.9	8.8	32.1	39.1
West	740	82	12.3	36.8	32
North	382	75.9	10.7	40.1	22.5
South	537	72.6	15.6	28.7	26.6
CoK	79	74.7	2.5	27.8	44.3
Type of impairment					
Physical	1,431	85.2	11.6	37.2	35.5
Visual	170	83.3	10.6	36.5	35.3
Hearing	105	65.7	17.1	23.8	22.9
Intellectual	292	64	16.1	28.4	17.1
Others	48	66.7	6.3	41.7	18.8
Combined	178	49.1	5.1	19.1	22.5
Marital status					
Never in union	700	36.7	9.4	14.7	11.3
married/cohabitating	1,155	97	11.9	43.1	41
Divorced/separated	120	96.7	10	42.5	44.2
Widow	249	96.4	18.5	42.2	34.5
Education level					
None	1,271	73.8	13.2	30.7	27.8
Primary	628	84.7	8.9	40.8	34.9
Vocational /Ordinary	217	80.1	12	33.2	34.6
Secondary & Higher	108	87	10.2	36.1	40.7

Table 18: Sexual violence

Variables	Frequency (n)	Yes Row %
Overall	**1,709**	**13.3**
Age group		
15-24	61	24.6
25-49	653	17.8
50+	995	9.7
Gender		
Male	835	6.9
Female	874	19.5
Current residence		
East	389	10.8
West	600	9.3
North	280	12.1
south	381	24.4
CoK	59	5.1
Type of impairment		
Physical	1,207	10.9
Visual	140	14.3
Hearing	67	16.4
Intellectual	180	26.7
Others	32	18.8
Combined	83	14.5
Marital status		
Never in union	248	33.5
married/cohabitating	1,108	10.2
Divorced/separated	116	15.5
widow	237	5.9
Education level		
None	911	13.3
Primary	531	13
Vocational /Ordinary level	173	19.7
Secondary and Higher level	94	4.3
Type of occupation		
None	696	12.8
student	25	40
Farmer	607	9.6
Small Business	110	17.3
Housekeeper	195	24.1
other	76	6.6

Table 19: Engaged in commercial sex

Variables	Frequency (N)	Yes Row %
Overall	**2224**	**5.0**
Age group		
15-24	318	2.8
25-49	850	5.9
50+	1,056	4.9
Gender		
Male	1,082	5
Female	1,142	5
Current residence		
East	486	1.4
West	740	3.4
North	382	5.5
South	537	10.6
CoK	79	1.3
Type of impairment		
Physical	1,431	5.5
Visual	170	5.9
Hearing	105	4.8
Intellectual	292	4.1
Others	48	0
Combined	178	2.8
Marital status		
Never in union	700	3.6
married/cohabitating	1,155	6.5
Divorced/separated	120	4.2
Widow	249	2.4
Education level		
None	1,271	4.6
Primary	628	5.6
Vocational /Ordinary level	217	6
Secondary and Higher level	108	4.6
Type of occupation		
None	1,003	2.5
Student	110	3.6
Farmer	666	5.6
Small Business	125	11.2
Housekeeper	236	12.7
Others	84	1.2

Table 20: Comprehensive Knowledge of HIV

		Abstinence	Condom	Faithfulness	Healthy Looking	Mosquito	Sharing Meal	Comprehensive knowledge
Variables	**N**	Row %	**Row %**	**Row %**	**Row %**	**Row %**	**Row %**	**Row %**
Overall	**2,224**	40.4	**72.8**	**53.6**	**81.5**	**77.9**	**78.6**	**250**
Age group								
15-24	318	32.4	67.6	42.8	58.5	82.1	73.9	17
25-49	850	40.2	73.2	54.7	82.9	79.4	79.5	28.5
50+	1,056	43	74.1	56.1	87.3	75.4	79.2	24.7
Gender								
Male	1,082	38.9	74.2	56	82.9	78	78.6	27.8
Female	1,142	41.9	71.5	51.4	80.2	77.8	78.5	22.4
Current residence								
East	486	31.9	76.1	55.1	85.8	83.5	88.1	35.2
West	740	44.3	79.2	48.6	80.1	80.5	80.8	28.2
North	382	51.3	78.3	46.3	82.2	71.5	75.4	13.1
south	537	34.8	54	58.5	77.8	71.3	66.5	11.5
CoK	79	41.8	93.7	93.7	89.9	93.7	96.2	82.3
Type of impairment								
Physical	1,431	39.5	74.3	56.8	89.7	79.1	81.1	29.4
Visual	170	42.9	74.1	55.9	81.2	70.6	80.6	20.6
Hearing	105	38.1	58.1	42.9	70.5	81.9	79	15.2
Intellectual	292	46.2	69.9	47.6	61.6	76.7	69.5	14.7
Others	48	45.8	77.1	70.8	89.6	77.1	83.3	43.8
Combined	178	36	71.9	37.6	53.4	74.7	69.7	12.4
Marital status								
Never in union	700	37.9	69.1	46.1	64.3	79.4	74.1	18.1
Married/Cohabitating	1,155	40.7	74.2	58.8	92	76.8	80.5	28.8
Divorced/Separated	120	41.7	76.7	46.7	82.5	80.8	84.2	25.8
Widow	249	45.8	74.7	54.2	80.7	77.1	79.1	26.5
Education level								
None	1,271	41.5	70.9	50.4	74.1	74.2	73.8	17.7
Primary	628	36.3	74.5	55.3	91.6	83.3	84.9	31.8
Vocational & O' level	217	45.2	75.1	63.1	88.5	78.8	84.3	37.8
Adv. & Higher level	108	41.7	80.6	63	96.3	88	86.1	46.3
Religion								
Catholic	1,178	38.2	69.9	51.3	81.2	76.7	77.2	21.3
Protestant	804	44	76.2	56	81.2	79	80.2	28.9
Adventist	186	38.7	73.1	56.5	84.4	78	77.4	28
Muslim	56	41.1	82.1	60.7	83.9	87.5	85.7	39.3
Type of occupation								
None	1,003	35.8	67.3	49	72.5	77.8	77.1	20.4
Student	110	31.8	72.7	44.5	67.3	84.5	70.9	19.1
Farmer	666	47.3	84.1	60.2	90.8	74.9	81.8	29
Small Business	125	40.8	75.2	58.4	92.8	86.4	84	37.6
Housekeeper	236	40.3	58.5	53	89	78.8	73.3	21.6
Other	84	52.4	85.7	64.3	96.4	78.6	86.9	47.6

Table 21: HIV Prevalence by risk behaviour

Variables	Frequency (n)	HIV Negative Row %	HIV Positive Row %
Overall	**1,620**	**91.2**	**8.8**
First sex abused			
No	1,403	92	8
Yes	217	86.2	13.8
Sex in last 12 months			
No	1,186	91.9	8.1
Yes	898	92.9	7.1
Whom you did sex with			
My spouse only	790	92.9	7.1
Extra-relationship	108	92.6	7.4
Paid sex in last 3 months			
No	1,993	92.7	7.3
Yes	100	86	14
Age at first sex			
Never had sex	473	96.2	3.8
Below 18	247	88.7	11.3
18-24	719	91.2	8.8
25/max	654	92.2	7.8
Comprehensive knowledge of HIV			
No	1,551	93.2	6.8
Yes	542	89.9	10.1
Comprehensive knowledge of ART			
No	577	97.2	2.8
Yes	1,513	90.5	9.5
Stigma Towards PLHIV			
No	770	95.1	4.9
Yes	1,323	90.8	9.2
Number of dependents			
None	784	94.3	5.7
1-2	490	92	8
3-4	349	90.8	9.2
5+	468	90.6	9.4

Table 22: Male circumcision coverage by socio-demographics

	Frequency	Yes Row %
Total	**1,038**	**30.7**
Age group		
15-24	151	45.7
25-49	396	40.2
50+	491	18.5
Current residence		
East	208	39.4
West	360	33.9
North	196	18.9
South	230	24.3
CoK	44	50
Type of disability		
Physical	705	34.2
Visual	80	26.3
Hearing	45	31.1
Intellectual	113	21.2
Others	22	31.8
Combined	73	16.4
Marital status		
Never in union	301	40.9
Married/cohabitating	671	27.3
Divorced/separated	29	34.5
Widow	37	8.1
Education level		
None	529	19.1
Primary	339	36.6
Vocational /Ordinary level	112	44.6
Secondary and Higher level	58	75.9

Table 23: Prevalence of Hepatitis B by socio-demographics

	Frequency	Hep B negative	Hep B negative	Hep B positive	Hep B positive
		Row %	95% CI	Row %	95% CI
Overall	**2,091**	**97.6**	**[97.6,97.6]**	**2.4**	**[2.4,2.4]**
Age group					
15-24	292	99	[99.0,99.0]	1	[1.0,1.0]
25-49	803	97.9	[97.9,97.9]	2.1	[2.1,2.1]
50+	998	96.9	[96.9,96.9]	3.1	[3.1,3.1]
Gender					
Male	1,025	97.3	[97.3,97.3]	2.7	[2.7,2.7]
Female	1,068	97.8	[97.8,97.8]	2.2	[2.2,2.2]
Current residence					
East	478	98.7	[98.7,98.7]	1.3	[1.3,1.3]
West	661	97.1	[97.1,97.1]	2.9	[2.9,2.9]
North	374	98.7	[98.7,98.7]	1.3	[1.3,1.3]
South	501	96.2	[96.2,96.2]	3.8	[3.8,3.8]
CoK	79	97.5	[97.5,97.5]	2.5	[2.5,2.5]
Type of impairment					
Physical	1,343	97.2	[97.2,97.2]	2.8	[2.8,2.8]
Visual	162	98.1	[98.1,98.1]	1.9	[1.9,1.9]
Hearing	102	97.1	[97.1,97.1]	2.9	[2.9,2.9]
Intellectual	283	98.2	[98.2,98.2]	1.8	[1.8,1.8]
Others	45	97.8	[97.8,97.8]	2.2	[2.2,2.2]
Combined	158	99.4	[99.4,99.4]	0.6	[0.6,0.6]
Marital status					
Never in union	649	98	[98.0,98.0]	2	[2.0,2.0]
Married/cohabitating	1,091	97.3	[97.3,97.3]	2.7	[2.7,2.7]
Divorced/separated	114	98.2	[98.2,98.2]	1.8	[1.8,1.8]
Widow	239	97.1	[97.1,97.1]	2.9	[2.9,2.9]
Education level					
None	1,192	98.2	[98.2,98.2]	1.8	[1.8,1.8]
Primary	593	97	[97.0,97.0]	3	[3.0,3.0]
Vocational /Ordinary level	205	95.6	[95.6,95.6]	4.4	[4.4,4.4]
Secondary and Higher level	103	98.1	[98.1,98.1]	1.9	[1.9,1.9]
Type of occupation					
None	942	97.9	[97.9,97.9]	2.1	[2.1,2.1]
Student	95	98.9	[98.9,98.9]	1.1	[1.1,1.1]
Farmer	636	98.3	[98.3,98.3]	1.7	[1.7,1.7]
Small Business	120	96.7	[96.7,96.7]	3.3	[3.3,3.3]
Housekeeper	220	94.1	[94.1,94.1]	5.9	[5.9,5.9]
Other	80	97.5	[97.5,97.5]	2.5	[2.5,2.5]

Table 24: Prevalence of Hepatitis C by socio-demographics

	Frequency	Hep C negative	Hep C negative	Hep C positive	Hep C positive
		Row %	95% CI	Row %	95% CI
Overall	**2,091**	**95.6**	**[95.6,95.6]**	**4.4**	**[4.4,4.4]**
Age group					
15-24	292	98.3	[98.3,98.3]	1.7	[1.7,1.7]
25-49	803	97.3	[97.3,97.3]	2.7	[2.7,2.7]
50+	998	93.6	[93.6,93.6]	6.4	[6.4,6.4]
Gender					
Male	1,025	96	[96.0,96.0]	4	[4.0,4.0]
Female	1,068	95.3	[95.3,95.3]	4.7	[4.7,4.7]
Current residence					
East	478	95.6	[95.6,95.6]	4.4	[4.4,4.4]
West	661	96.1	[96.1,96.1]	3.9	[3.9,3.9]
North	374	96.3	[96.3,96.3]	3.7	[3.7,3.7]
South	501	94.6	[94.6,94.6]	5.4	[5.4,5.4]
CoK	79	96.2	[96.2,96.2]	3.8	[3.8,3.8]
Type of impairment					
Physical	1,343	95.6	[95.6,95.6]	4.4	[4.4,4.4]
Visual	162	95.7	[95.7,95.7]	4.3	[4.3,4.3]
Hearing	102	93.1	[93.1,93.1]	6.9	[6.9,6.9]
Intellectual	283	95.4	[95.4,95.4]	4.6	[4.6,4.6]
Others	45	97.8	[97.8,97.8]	2.2	[2.2,2.2]
Combined	158	97.5	[97.5,97.5]	2.5	[2.5,2.5]
Marital status					
Never in union	649	97.2	[97.2,97.2]	2.8	[2.8,2.8]
Married/cohabitating	1,091	95.2	[95.2,95.2]	4.8	[4.8,4.8]
Divorced/separated	114	97.4	[97.4,97.4]	2.6	[2.6,2.6]
Widow	239	92.5	[92.5,92.5]	7.5	[7.5,7.5]
Education level					
None	1,192	95.4	[95.4,95.4]	4.6	[4.6,4.6]
Primary	593	96.3	[96.3,96.3]	3.7	[3.7,3.7]
Vocational /Ordinary level	205	95.1	[95.1,95.1]	4.9	[4.9,4.9]
Secondary and Higher level	103	96.1	[96.1,96.1]	3.9	[3.9,3.9]
Type of occupation					
None	942	95.4	[95.4,95.4]	4.6	[4.6,4.6]
Student	95	94.7	[94.7,94.7]	5.3	[5.3,5.3]
Farmer	636	97.2	[97.2,97.2]	2.8	[2.8,2.8]
Small Business	120	95.8	[95.8,95.8]	4.2	[4.2,4.2]
Housekeeper	220	91.8	[91.8,91.8]	8.2	[8.2,8.2]
Other	80	97.5	[97.5,97.5]	2.5	[2.5,2.5]

Table 25: Comprehensive knowledge of TB symptoms

	Frequency (N)	No Row %	Yes Row %
Total	**2,224**	**67.9**	**32.1**
Age group			
15-34	318	83.0	17.0
25-49	850	65.8	34.2
50+	1,056	65.2	34.8
Gender			
Male	1,082	64.5	35.5
Female	1,142	71.2	28.8
Current residence			
East	486	57.6	42.4
West	740	56.1	43.9
North	382	84.3	15.7
South	537	89.6	10.4
CoK	79	16.5	83.5
Type of impairment			
Physical	1,431	62.0	38.0
Visual	170	74.1	25.9
Hearing	105	82.9	17.1
Intellectual	292	83.6	16.4
Others	48	52.1	47.9
Combined	178	79.8	20.2
Marital status			
Never in union	700	78.0	22.0
Married/cohabitating	1,155	61.9	38.1
Divorced/separated	120	68.3	31.7
Widow	249	67.5	32.5
Education level			
None	1,271	72.5	27.5
Primary	628	63.9	36.1
Vocational /Ordinary level	217	57.6	42.4
Secondary and Higher level	108	58.3	41.7
Type of occupation			
None	1,003	73.2	26.8
Student	110	78.2	21.8
Farmer	666	57.8	42.2
Small Business	125	58.4	41.6
Housekeeper	236	82.2	17.8
Other	84	46.4	53.6

Table 26: Comprehensive knowledge of TB Prevention

	Frequency (N)	No Row %	Yes Row %
Overall	**2,224**	**64.2**	**35.8**
Age group			
15-34	318	74.5	25.5
25-49	850	62.2	37.8
50+	1,056	62.7	37.3
Gender			
Male	1,082	60.4	39.6
Female	1,142	67.9	32.1
Current residence			
East	486	61.5	38.5
West	740	55.7	44.3
North	382	73.6	26.4
South	537	79.7	20.3
CoK	79	10.1	89.9
Type of impairment			
Physical	1,431	59.0	41.0
Visual	170	66.5	33.5
Hearing	105	81.9	18.1
Intellectual	292	78.4	21.6
Others	48	56.3	43.8
Combined	178	71.9	28.1
Marital status			
Never in union	700	69.1	30.9
Married/cohabitating	1,155	61.2	38.8
Divorced/separated	120	65.0	35.0
Widow	249	63.9	36.1
Education level			
None	1,271	69.3	30.7
Primary	628	60.0	40.0
Vocational /Ordinary level	217	52.1	47.9
Secondary and Higher level	108	52.8	47.2
Type of occupation			
None	1,003	68.6	31.4
Student	110	70.0	30.0
Farmer	666	56.8	43.2
Small Business	125	53.6	46.4
Housekeeper	236	79.2	20.8
Other	84	36.9	63.1

Table 27: Type of contraceptive methods

	Frequency (N)	Modern Row %	Traditional Row %
Total	**501**	**91.4**	**8.6**
Age group			
15-34	22	100.0	-
25-49	294	92.9	7.1
50+	185	88.1	11.9
Gender			
Male	220	88.6	11.4
Female	281	93.6	6.4
Current residence			
East	112	91.1	8.9
West	158	87.3	12.7
North	100	95.0	5.0
South	113	92.9	7.1
CoK	18	100.0	-
Type of impairment			
Physical	359	90.8	9.2
Visual	49	93.9	6.1
Hearing	22	86.4	13.6
Intellectual	40	95.0	5.0
Others	7	100.0	-
Combined	24	91.7	8.3
Marital status			
Never in union	72	95.8	4.2
Married/cohabitating	390	90.0	10.0
Divorced/separated	23	100.0	-
Widow	16	93.8	6.3
Education level			
None	216	91.2	8.8
Primary	188	89.9	10.1
Vocational /Ordinary level	66	93.9	6.1
Secondary and Higher level	31	96.8	3.2
Type of occupation			
None	143	93.0	7.0
Student	13	100.0	-
Farmer	204	85.8	14.2
Small Business	48	93.8	6.3
Housekeeper	69	98.6	1.4
Other	24	100.0	-

Table 28: Use of contraceptive methods

	Frequency (N)	No Row %	Yes Row %
Overall	**2,224**	**76.6**	**23.4**
Age group			
15-34	318	92.8	7.2
25-49	850	64.5	35.5
50+	1,056	81.4	18.6
Gender			
Male	1,082	78.7	21.3
Female	1,142	74.6	25.4
Current residence			
East	486	76.1	23.9
West	740	77.8	22.2
North	382	73.0	27.0
South	537	77.7	22.3
CoK	79	77.2	22.8
Type of impairment			
Physical	1,431	74.2	25.8
Visual	170	70.0	30.0
Hearing	105	77.1	22.9
Mental	292	84.2	15.8
Others	48	85.4	14.6
Combined	178	86.5	13.5
Marital status			
Never in union	700	89.3	10.7
Married/cohabitating	1,155	65.1	34.9
Divorced/separated	120	80.8	19.2
Widow	249	92.0	8.0
Education level			
None	1,271	82.1	17.9
Primary	628	69.1	30.9
Vocational /Ordinary level	217	69.1	30.9
Secondary and Higher level	108	69.4	30.6
Type of occupation			
None	1,003	85.4	14.6
Student	110	86.4	13.6
Farmer	666	68.2	31.8
Small Business	125	59.2	40.8
Housekeeper	236	69.9	30.1
Other	84	69.0	31.0

Appendix 2: List of Selected Sectors

Table 29: List of selected Sectors and HCs that facilitated the study

No	Province	District	Sector	Health center
1	City of Kigali	Gasabo	Gatsata	Gatsata HC
2			Rutunga	Kayanga HC
3		Nyarugenge	Nyamirambo	Biryogo
4	East	Bugesera	Nyamata	Nyamata HC
5			Ngeruka	Ngeruka HC
6		Gatsibo	Gitoki	Gitoki HC
7			Nyagihanga	Nyagihanga HC
8		Kayonza	Kabarondo	Kabarondo HC
9		Kirehe	Kigina	Kigina HC
10		Ngoma	Gashanda	Gashanda HC
11		Nyagatare	Kiyombe	Cyondo HC
12			Rwempasha	Rwempasha HC
13		Rwamagana	Kigabiro	Rwamagana HC
14			Fumbwe	Nyagasambu HC
15	North	Burera	Gatebe	Gatebe HC
16			Kivuye	Kivuye HC
17		Gakenke	Gashenyi	Rukura HC
18		Gicumbi	Miyove	Miyove HC
19			Muko	Muko HC
20			Rukomo	Gisiza HC
21			Bukure	Giti HC
22			Giti	Tanda HC
23		Musanze	Rwaza	Rwaza HC
24			Gashaki	Gashaki HC
25			Kimonyi	Kimonyi HC
26		Rulindo	Ntarabana	Kajevuba HC
27			Cyungo	Marembo HC
28	South	Gisagara	Gikonko	Gikonko HC
29		Huye	Mbazi	Mbazi HC
30		Kamonyi	Kayenzi	Kayenzi HC
31			Musambira	Musambira HC
32			Karama	Karama HC
33		Muhanga	Kibangu	Gitega HC
34		Nyamagabe	Musebeya	Musebeya HC
35		Nyanza	Cyabakamyi	Mucubira HC
36		Nyaruguru	Ruheru	Ruheru HC
37			Cyahinda	Cyahinda HC
38		Ruhango	Ruhango	Ruhango HC
39	West	Karongi	Murundi	Munzanga HC
40			Mubuga	Mubuga HC
41			Rugabano	Rugabano HC
42		Ngororero	Ndaro	Ntobwe HC
43			Muhororo	Ntaganzwa HC
44			Kabaya	Kabaya HC
45		Nyabihu	Shyira	Shyira HC
46		Nyamasheke	Karambi	Karambi HC
47		Rusizi	Gitambi	Mashesha HC
48			Gihundwe	Gihundwe HC
49		Rutsiro	Nyabirasi	Nyabirasi HC
50			Kigeyo	Cyimbili HC

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