Assessing the Quality of HIV Care in Health Care Facilities in Kinshasa, Democratic Republic of Congo: Compliance with National Guidelines

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ABSTRACT

Context: The Democratic Republic of Congo (DRC) has more than 400,000 people living with HIV on antiretroviral treatment (ART). This burden of patients on ART on a health system with limited resources and resilience has an impact on the quality of HIV care delivery. The general objective of this study is to assess the quality of care for people living with HIV in health care facilities in Kinshasa, and specifically to measure the level of compliance of HIV care provision with national guidelines.

Methodology: This is a retrospective, quantitative cohort study using secondary data collected from March 4 to 12, 2024 in three health care establishments (ESS) offering HIV care services in Kinshasa. The study used as a framework a single object of care evaluation, the "procedures", among the three of the Avedis Donabedian model, that is to say "structures – procedures – results". The medical records of a cohort of 110 patients aged 18 years and older who initiated ART during the period from November 1, 2021 to January 31, 2022 and followed for at least 2 years of treatment were evaluated. Data was collected through android mobile phones using a form developed in the KoBo Collect application and analyzed using SPSS Windows version 25.0 software. The performance of each ESS was determined based on the level of compliance (compliance score) of its HIV care provision with national guidelines.

Results: The majority of patients on ART are female (67.3%) and the average age is 40.95 ± 7.93 years. Compliance of HIV care provision with national guidelines is 31.1%. It is 71.3% before ART initiation and 14.4% during clinical and biological monitoring. Compared to each health establishment (ESS), it is 39.6% at CS Libondi having less than 1000 patients on ART, 31.3% at CH Kingasani having between 1000 and 2000 patients on ART and 30.2 % at CH Kinkenda having more than 2000 patients on ART.

Conclusion: Generally speaking, compliance with national HIV/AIDS treatment guidelines by healthcare providers in ESS in Kinshasa is poor. It is good before initiation of ART and poor during clinical and biological monitoring of patients on ART, and it varies depending on the number of patients on ART followed in the ESS. HIV care therefore requires urgent actions to improve the quality of its procedures.

Keywords: Care Assessment, Quality, Quality HIV care, Kinshasa, HIV care standards, Compliance with HIV care standards.

INTRODUCTION

Research Context

The Democratic Republic of Congo (DRC) aligns with the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015, particularly in the context of health on the third objective which emphasizes health and promotion of the well-being of all, and in this specific case of the response to HIV, on its point 3 (SDG 3.3) which aims to end the AIDS epidemic by 2030. To materialize this objective, the Since 2016, UNAIDS had set the global objectives "triple 90" by 2021, then "triple 95" by 2025, which stipulates that 95% of people living with HIV (PLHIV) must know their serological status, among them 95% must be put on antiretroviral treatment (ART), and 95% of whom must have a suppressed viral load. But, it was clear that the DRC had not achieved the 2021 objective, and as for the 2025 objective, despite the progress made, the DRC is at 84% - 81% - 73% in 2022 [1].

There are several reasons for these performance gaps, including the low quality of care for people living with HIV. However, for several years, the DRC has placed particular emphasis on improving the quality of HIV care in its national policy documents (National Strategic Plan for the response to HIV/AIDS and the Health Sector Plan for combating STIs and HIV/AIDS) and updates national guidelines for HIV care, the latest of which date from September 2021, but the low quality of this care remains one of the priority problems and its evaluation is not commonplace [1]. It is in this context that this study is carried out to assess the quality of care of PLHIV through compliance with national directives in order to contribute to the improvement of their health and well-being.

Search Problem

HIV/AIDS infection remains a major public health problem in Africa, particularly in the Democratic Republic of Congo (DRC). The HIV epidemic is generalized in the DRC with an estimated prevalence of 1.2% in the general population aged 15 to 49 [2]. In 2022, new infections and deaths due to AIDS are estimated respectively at 23,200 and 15,248 according to Spectrum V6.26, 2023 [3], and the number of PLHIV on ART at 403,106 [4]. This burden of patients on ART on a health system with limited resources and resilience has an impact on the quality of HIV care delivery [5].

The quality of health care is a challenge for any health system [6] and even for that of the DRC [7]. It's evaluation therefore proves to be an essential and determining procedure for improving care services and even the health system [8]. HIV health care in the DRC also faces this challenge linked to the quality of care which remains precarious [9]. However, few studies have been carried out to evaluate it [1]. The National Program for the Fight against STIs and HIV/AIDS in the health sector (PNLS) had put in place, in 2021, standardized protocols for the prevention and treatment of HIV, training guides for HIV package providers, and strengthened formative supervision to improve the quality of care. However, the lack of surveys on this subject does not allow for up-to-date data on the quality of HIV care. Thus, the quality of HIV care constitutes an important problem in the DRC which requires evaluation.

Failure to regularly assess the quality of care would contribute to the deterioration of healthcare delivery and even the health system, and compliance with national guidelines by healthcare providers is an essential procedure in assessing the quality of healthcare health [10]. This is how this study focuses on compliance with national guidelines, an aspect of quality of care that is still little explored in the DRC, precisely on those of the initial assessment before starting ART and the clinical and biological monitoring of patients ART.

Research Questions and Hypotheses

This study seeks to answer the following two questions:

- What is the level of compliance of HIV care provision with national guidelines in health care settings?

- Does the level of compliance of HIV care provision with national guidelines vary depending on the number of people living with HIV on antiretroviral treatment in these health care settings?

In view of these questions, this study plans to obtain the following results:

- The level of compliance of HIV care provision with national guidelines is poor in health care settings;

- Does the level of compliance of HIV care delivery with national guidelines depend on the number of people living with HIV on antiretroviral treatment in a health care setting?

Research aim and objectives

Aim

The aim of this study is to contribute to improving the quality of care provided to people living with HIV.

Main objective

Assessing the quality of HIV care in health care facilities in Kinshasa.

Specific objectives

- Describe the sociodemographic characteristics of PLHIV receiving antiretroviral treatment (ART);

- Measure the level of compliance of HIV care provision with national guidelines;

- Formulate recommendations for improving the quality of HIV care provision in health care facilities in the city of Kinshasa and improving public health policies in the DRC on the quality of HIV care.

LITERATURE PAPER

Definitions of key concepts

Evaluation of care

It is since 1902, in the United States, during the creation of the precursor of the Food and Drug Administration (FDA) that the notion of evaluation of techniques has emerged in order to ensure the safety of biological products used on the American soil. This concept subsequently evolved based on two approaches, one institutional (institutional approach) focused on the quality of care offered to individuals by care providers in health care establishments and the other systemic (systemic approach). Focused on the service provided to a community by public health organizations [11]. The concepts and methods of care evaluation expanded in France around the 1970s until its institutionalization between the 1980s and 1990s. But it was Avedis Donabedian who defined the three objects of care evaluation, namely care structures, care procedures and care outcomes [11, 12].

Care procedures according to Donabedian are defined as any act of care with a diagnostic (clinical or paraclinical) or therapeutic aim. These procedures include the technical dimension (patient monitoring, technical quality of care provision, procedures put in place, patient record keeping, proper scheduling of examinations, etc.) and human dimension (doctor-patient relationship, adherence to care) from the patient's entry into the health care facility until discharge [13].

We have retained this Donabedian model, particularly in its second object of the evaluation of care "care procedures" and in its technical dimension, because it allows our study to achieve its main object that of analyzing care procedures of HIV in health care settings and compare them to national guidelines.

Quality

After analyzing several literatures on quality measurement, Plante concluded that quality must be measured based on three interconnected positions: desired quality, delivered quality and perceived quality [14, 15].

Plante and Bouchard define quality as a dream that any establishment must achieve [15]. They also give other definitions of quality according to different authors, notably as excellence [16], a value [17], conformity to what is wanted [18, 19], perceived [20] and produced [17, 18], or as that which is without defect [18].

The International Institute for Standardization (ISO) considers quality as "the set of traits and characteristics of a product or service which gives them the ability to satisfy stated or implicit needs" [21].

Donabedian, one of the emblematic figures of quality, defines quality care as that which improves the well-being of patients after having evaluated the benefits and risks at all levels of the care process [8, 22].

Our study retained the definition of quality according to Crosby and Gilmore [18, 19] as conformity to what is desired. What is desired is considered in our study to be what is recommended by the country, i.e. national HIV care guidelines.

Quality HIV care

Quality HIV care is defined as care that is effective and meets recommended standards and guidelines to reduce the impact of HIV infection on the person and deaths from the disease [5, 21].

HIV care standards or guidelines

Standards of HIV/AIDS care are defined as:

Performance expectations and represent a generic statement of what is expected of the HIV treatment service site. They help improve the quality of care delivered, shape positive service delivery behavior, eliminate unwanted variations in care processes, and provide a framework for measuring outcomes [5, 21].

Adherence to HIV care standards

Adherence to standards of HIV care is defined as adherence to recommended guidelines for diagnosis and treatment of HIV infection [10, 23].

All these concepts defined above allowed us to clearly define the subject of our study, to understand the methodological approach (Donabedian's three objects of care) used by the empirical work presented below, and to justify the choice of one of Donabedian's objects of care, in this case the object "procedures"

as a methodological approach leading us to answer our research questions.

METHODOLOGY

Once again, our study has the general objective of assessing the quality of care of people living with HIV in health care facilities in Kinshasa, and in a specific way to describe the sociodemographic characteristics of PLHIV on ART, to measure the level of compliance of HIV care provision with national guidelines and to make recommendations for improving the quality of HIV care provision in health care facilities and improving public health policies of the DRC on the quality of HIV care.

Research framework

The study was carried out in the city-province of Kinshasa, capital of the Democratic Republic of Congo (DRC), located in the west of the country. It is one of the twenty-six provinces of the DRC with an area of 9,965 km2. Its population was estimated in 2019, at 13,916, 000 inhabitants [24]. The city-province of Kinshasa is limited to the North-East and the East by the province of Kwango, to the South by that of Kongo central, to the North-West and to the West by the Republic of Congo, with which it is separated by part of the Congo River. It includes 4 districts (Funa, Mont-Amba, Tshangu and Lukunga) and 24 communes.

In terms of health, the city-province of Kinshasa has 35 Health Zones (ZS) and 413 health care establishments offering HIV/AIDS care services (data extracted from DHIS 2 to December 1, 2022). Data were collected in 3 health care settings (HCOs). These are: Libondi Health Center, Kingasani Hospital Center and Kinkenda Hospital Center.

As of December 1, 2022, CS Libondi had a cohort of 420 PLHIV on ART, i.e. 374 adults and 46 children;the Kingasani CH had a cohort of 1,700 PLHIV on ART, i.e. 1,627 adults and 73 children; and the Kinkenda CH had a cohort of 2,072 PLHIV on ART, i.e. 2,047 adults and 25 children(data extracted from DHIS 2 as of December 1, 2022)

Type and duration of study

This is a retrospective, quantitative cohort study using secondary data collected from March 4 to 12, 2024 in three health care facilities offering HIV care services in Kinshasa. The study used as a framework a single object of care evaluation "procedures" among Avedis Donabedian's three, that is to say "structures – procedures – results". The performance of each health care facility was determined based on the level of compliance (compliance score) of its HIV care delivery with national guidelines.

Study population and sampling

The study population concerns all the medical records (non-probability, exhaustive sampling) of a cohort of adults living with HIV (PLHIV) on antiretroviral treatment (ART) followed for at least 2 years of treatment in the three Selected ESS (CS Libondi, CH Kingasani, CH Kinkenda).

The three ESSs were selected based on probability sampling. First, the ESS offering HIV care services in Kinshasa were divided into three strata according to their cohort of PLHIV (adults and children) under treatment. Antiretroviral as of December 1, 2022:ESS having a cohort of less than 1000 PLHIV on ART, ESS having a cohort between 1000 and 2000 PLHIV on ART and ESS with more than 2000 PLHIV on ART. This file of ESS

offering HIV care services in Kinshasa with their cohort of PLHIV was extracted in DHIS 2 and made available to us by the PNLS data management service. In the 1st stratum, there were 393 ESS, in the 2nd stratum 16 ESS and in the 3rd stratum 4 ESS, for a total of 413 ESS. Thus in each strata, an ESS was chosen using a simple random sampling approach using the random function of the Excel software. These are: Libondi Health Center (CS) in the Bumbu ZS (for the 1st stratum), Kingasani Hospital Center (CH) in the Kingasani ZS (for the 2nd stratum) and CH Kinkenda in the Binza Météo ZS (for the 3rd stratum).

Selection Criteria

Inclusion criteria

Included in the study are the medical records of adult PLHIV aged 18 and over who initiated ART during the period from November 1, 2021 to January 31, 2022.

This ART initiation period was chosen based on the publication date, in September 2021, of the new national guidelines for HIV care in the DRC included in the "Updated guide to integrated HIV care in the DRC", and follow-up is limited to 2 years of treatment depending on the start date of data collection.

Exclusion criteria

Excluded from the study:

- The medical records of PLHIV aged 18 and over who initiated ART during the period from November 1, 2021 to January 31, 2022, but who were not followed for at least 2 years of treatment;

- Medical records of PLHIV on ART aged 18 and over and who are in the advanced stage of AIDS;

- The medical records of PLHIV aged 18 and over who initiated ART during the targeted period, but outside the selected ESS and "transferred in » ;

- The medical records of pregnant and breastfeeding women aged 18 and over and those of children under 18 who started ART during the same period, for whom care is subject to specific national guidelines linked respectively to prevention of mother-to-child transmission of HIV (PMTCT) and pediatric management of HIV infection.

Study Variables

The request, search or mention of the following clinical, biological and therapeutic parameters by healthcare providers were searched in medical records:

- Socio-demographic characteristics: sex, age, place of residence (commune), marital status, level of education, nationality, and profession/occupation;

- Clinical, biological and therapeutic parameters: date of last screening before ART initiation, vital signs before ART initiation, symptoms before ART initiation, tuberculosis screening before ART initiation, WHO staging, date of ART initiation, treatment regimen and cotrimoxazole prophylaxis, dates of appointments for clinical follow-up, blood counts, transaminases, urea/creatinine, viral load. Blood sugar and triglycerides/cholesterol.

Data collection technique

Data were collected by examining the medical records of PLHIV included in the study using an electronic collection form designed in the KoboToolbox platform (https://www.kobotoolbox.org/) and installed in android mobile phones using the KoboCollect application. The data validated by the investigators in the android phones were directly sent and compiled in the central server managed byTHEresponsible for the investigation. The data collection sheet is made up of four parameters (sociodemographic, clinical and biological before and after ART initiation, and therapeutic) with 31 items. Biological parameters represent the essential assessment of PLHIV on ART according to national guidelines.

This approach to collecting data in an electronic manner had several advantages, including significant time savings in data collection and compilation, and online data storage.

Data Analysis

Data were analyzed using SPSS version 25.0 software.Central location measures such as mean, median or mode, and corresponding dispersion values such as standard deviation, confidence interval, were used to summarize the distributions of quantitative variables such as age of PLHIV whose medical records were analyzed. Descriptive statistics such as frequency and proportion were used for variables such as gender, municipality of residence, marital status, educational level, nationality and occupation. They were also used to measure the availability (compliance score) of the elements of the initial assessment of PLHIV, the initiation of ART, and those of clinical and biological monitoring of PLHIV on ART in medical records. Compliance scores for each item were summed (cumulative score) to measure total compliance of each health care facility's (HCF) baseline assessment, ART initiation, and clinical and laboratory monitoring with national guidelines. . These three total scores were also summed in turn to give the HIV care provision compliance score for each ESS and thus for all three ESSs (HIV care provision compliance score). This methodology for measuring compliance of healthcare provision with national guidelines was also applied by Tiruneh and Woldeyohannes [6].

These authors used a judgment scale, which we also opted for in our study, to assess the score of compliance of HIV care provision with national guidelines. This scale is summarized as follows:

- Excellent: if the score > 90%;

- Very good: if 80 to 90%;

- Good: if 70 to 80%;

- Fair: if 60 to 70%;

- Bad: if the score < 60%.

The quality of HIV care is considered acceptable if the score > 85%, if between 70 to 85%, there is a need for improvement, and if < 70% there is a need for urgent improvement actions.

The data was presented in table form.

The frequencies of request or search for variables of the initial evaluation and clinical and biological follow-up of PLHIV on ART by care providers up to 2 years of ART are determined in the integrated HIV care guide of the DRC as follows:

Appointment dates for clinical follow-up: on the 14th day after initiation of ART, at 1 month, then every month for 3 months, then every 3 months until one year of ART, then every 6 months (at J14, M1, M2, M3, M6, M9, M12, M18, M24 of the TAR);

- Blood count: before starting ART, then every 6 months (on D0, M6, M12, M18, M24 of ART);

- Transaminases: every 6 months after initiation of ART for up to one year, then every year (at M6, M12, M24 of ART);

- Urea/Creatinine: every month after ART initiation until 3 months, then at 6 months and one year after ART, then every year (at M1, M2, M3, M6, M12, M24 of ART);

- Viral load: every 6 months after initiation of ART for up to one year, then every year (at M6, M12, M24 of ART);

- Blood sugar: every month after ART initiation until 3 months, then at 6 months and every 6 months of ART (at M1, M2, M3, M6, M12, M18, M24 of ART);

- Triglycerides/cholesterol: every month after initiation of ART until 3 months, then at 6 months and every 6 months of ART (at M1, M2, M3, M6, M12, M18, M24 of ART).

Ethical Considerations

Ethical standards were respected through the approval of the research protocol by the national health ethics committee of the DRC, administrative authorizations for data collection from the Provincial Health Division of Kinshasa and the Diocesan Office of Medical Works (BDOM) of the Archdiocese of Kinshasa, given that the three selected ESS belong to the Catholic Church.

Information on the research objectives and methodology, risks and benefits of the study were provided to the managers of the three ESSs before data collection. The names of PLHIV recorded in the medical files were not recorded in the Kobocollect software to respect the principle of anonymity. The numbers of the files recorded there were only known to the investigators and the head of the study who are bound by the principle of confidentiality. The database consolidated in the central server is only managed by the study manager.

DATA ANALYSIS

Distribution of medical records of PLHIV on ART analyzed by health care facility Table 1.

A total of 110 medical records of PLHIV on ART were analyzed, i.e. 57 (51.8%) at CH Kinkenda, 48 (43.6%) at CH Kingasani and 5 (4.5%) at CS Libondi.

Sociodemographic characteristics of PLHIV on ART whose medical records were analysed Table 2.

The majority of PLHIV on ART are female (67.3%) and males represent 32.7%. Table 3.

The average age of PLHIV on ART is 40.95 ± 7.93 years (95% CI), with a minimum of 21 years and a maximum of 69 years. The median age is 41 years old. The majority, 46 (41.8%), are in the age group of 40 to 44 years, followed by the age group of 35 to 39 years, or 26 (23.6%) Table 4.

Generally speaking, the majority of PLHIV on ART (36.4%) reside in the commune of Ngaliema followed by the communes Selembao (16.4%), Masina and Kimbanseke, respectively 12.7% for both. In CS Libondi, the majority (40%) reside in the commune of Bumbu; in CH Kingasani, the majority resides in the communes of Kimbanseke and Masina, i.e. 29.2% respectively for the two communes; and in CH Kinkenda, the majority (50.9%) reside in the commune of Ngaliema.

This table shows that the majority of PLHIV followed in the three ESSs come from communes other than those where these ESSs are located: in CS Libondi 60% come from communes other than that of Bumbu and in CH Kingasani 70.8% come from communes other than that of Kimbanseke. Except for CH Kinkenda where PLHIV residing in the commune of Ngaliema (50.9%) are almost in equal proportion to those residing in other communes (49.1%).

In 10 files (9.1%), the municipalities of residence of PLHIV on ART are not recorded.

83 (75.5%), PLHIV are married, 5 (4.5%) are single, 4 (3.6%) are in a common-law union and 4 (3.6%) are widowed. The marital status of PLHIV on ART is not recorded in 14 (12.7%) medical files Table 5.

The majority of PLHIV on ART, 62 (56.4%), were limited to secondary school and 5 (4.5%) to primary school (4.5%). Those who have attended university number 5 (4.5%). The educational level of PLHIV on ART is not recorded in 38 (34.5%) medical records Table 6.

102 (92.7%) PLHIV on ART whose medical records were analyzed are of Congolese nationality. And in 8 (7.3%) files analyzed, nationality is not recorded Table 7.

28 (25.5%) PLHIV on ART are housewives. And in the majority of medical files, i.e. 64 (58.2%), the profession/occupation of PLHIV on ART is not recorded Table 8.

Table 1: Distribution of medical records of PLHIV on ART analysed by health care facility.

Health care establishment (ESS)	Effective	Percentage
CS Libondi	5	4.5
CH Kingasani	48	43.6
CH Kinkenda	57	51.8
Total	**110**	**100**

Table 2: Distribution of PLHIV on ART by sex.

Sex	Number (N=110)	Percentage
Male	36	32.7
Feminine	74	67.3

Table 3: Distribution of PLHIV on ART according to age groups.

Age groups	Number (N=110)	Percentage
20-24 years old	2	1.8
25-29 years old	6	5.5

Availability of elements of the initial assessment in the medical files of PLHIV on ART

Generally speaking, this table shows that compliance of HIV care provision with national guidelines at the initial assessment of PLHIV is measured at 71.3%. This score is 80% at CS Libondi, 73.8% at CH Kingasani and 68.4% at CH Kinkenda Table 9.

Vital signs and symptoms other than those of tuberculosis are very poorly recorded, respectively in 41 (37.3%) and 14 (12.7%) files of patients on ART. And the request by healthcare providers for blood counts (CBC) before initiation of ART is not recorded in any records and there are no results mentioned.

However, other elements like gender and screening date are recorded there respectively in 100%. Age, weight, WHO clinical stage and tuberculosis screening are recorded respectively in 97.3%, 99.1%, 99.1%, and 96.4%.

Availability of elements of ART initiation in the medical records of PLHIV on ART

This table shows that the extent of compliance of care delivery with national guidelines at ART initiation is 99.7%. They are fully compliant with national directives at CS Libondi (100%) and CH Kingasani (100%), except at CH Kinkenda (99.4%) Table 10.

The treatment regimen and cotrimoxazole prophylaxis are recorded respectively in 100% of the files. However, the date of ART start is recorded in 109 files out of 110 (99.1%). The only file that does not mention the start date of ART is found at CH Kinkenda.

The TDF/3TC/DTG therapeutic regimen is recorded in 109 (99.1%) medical files out of 110. It is a first-line and first-line regimen in compliance with national guidelines. This therapeutic regime is not recorded in a single file (2.1%) out of 48 at CH Kingasani Table 11.

Table 4: Distribution of PLHIV on ART according to municipalities of residence.

Residential commune	CS Libondi		CH Kingasani		CH Kinkenda		Total number (N=110)	%
	Number (n=5)	%	Number (n=48)	%	Number (n=57)	%		
Bumbu	2	40.0	0	0.0	2	3.5	4	3.6
Kalamu	1	20.0	0	0.0	0	0.0	1	0.9
Kimbanseke	0	0.0	14	29.2	0	0.0	14	12.7
Kintambo	0	0.0	0	0.0	2	3.5	2	1.8
Kisenso	0	0.0	1	2.1	0	0.0	1	0.9
Lime	0	0.0	3	6.2	1	1.7	4	3.6
Masina	0	0.0	14	29.2	0	0.0	14	12.7
Mount Ngafula	0	0.0	2	4.2	0	0.0	2	1.8
Ngaliema	1	20.0	0	0.0	29	50.9	30	27.3
Ngiri Ngiri	0	0.0	0	0.0	1	1.7	1	0.9
Nsele	0	0.0	9	18.7	0	0.0	9	8.2
Selembao	0	0.0	0	0.0	18	31.6	18	16.4
Municipality of residence not mentioned in the medical file	1	20.0	5	10.4	4	7.0	10	9.1

Table 5: Distribution of PLHIV on ART according to marital status.

Marital status	Number (N=110)	Percentage
Married	83	75.5
Bachelor	5	4.5
Free Union	4	3.6
Widower	4	3.6
Marital situation not mentioned in the medical file	14	12.7

Table 6: Distribution of PLHIV on ART according to educational level.

Educational level	Number (N=110)	Percentage
Primary	5	4.5
Secondary	62	56.4

Table 7: Distribution of PLHIV on ART by nationality.

Nationality	Number (N=110)	Percentage
Congolese (DRC)	102	92.7
Nationality not mentioned in the medical file	8	7.3

Table 8: Distribution of PLHIV on ART according to profession/occupation.

Profession/occupation	Number (N=110)	Percentage
Household	28	25.5
Trader	7	6.4
Pupil	1	0.9
Student	1	0.9
State worker	1	0.9
Unemployed	3	2.7
Teacher	1	0.9
Police officer	4	3.6
Profession/occupation not mentioned in the medical file	64	58.2

Table 9: Availability in the medical files of PLHIV on ART of elements of the initial evaluation.

Variables	CS Libondi		CH Kingasani		CH Kinkenda		Total number (N=110)	%
	Number (n=5)	%	Number (n=48)	%	Number (n=57)	%		
Age	5	100	45	93.7	57	100	107	97.3
Sex	5	100	48	100	57	100	110	100
Weight	4	80	48	100	57	100	109	99.1
Vital signs	4	80	28	58.3	9	15.8	41	37.3
Screening date	5	100	48	100	57	100	110	100
Check for symptoms	4	80	10	20.8	0	0	14	12.7
WHO clinical stage	5	100	47	97.9	57	100	109	99.1
Tuberculosis screening	4	80	45	93.7	57	100	106	96.4
Complete blood count (CBC)	0	0	0	0	0	0	0	0
	Score cumulative (n=45)	%	Cumulative score (n=432)	%	Cumulative score (n=513)	%	Total cumulative score (N=990)	%
National guidelines compliance score	36	80	319	73.8	351	68.4	706	71.3

Table 10: Availability in the medical records of PLHIV on ART of elements of ART initiation.

Variables	CS Libondi		CH Kingasani		CH Kinkenda		Total number (N=110)	%
	Number (n=5)	%	Number (n=48)	%	Number (n=57)	%		
ART start date	5	100	48	100	56	98.2	109	99.1
Treatment regimen	5	100	48	100	57	100	110	100
Cotrimoxazole prophylaxis	5	100	48	100	57	100	110	100
	Cumulative score (n=15)	%	Cumulative score (n=144)	%	Cumulative score (n=171)	%	Total cumulative score (N=330)	%
National guidelines compliance score	15	100	144	100	170	99.4	329	99.7

Availability of clinical and biological monitoring elements in the medical files of PLHIV on ART

Generally speaking, the extent of compliance of care provision with national guidelines during the clinical and biological monitoring of PLHIV on ART is 14.4%. This score is 23.7% at CS Libondi, 14% at CH Kingasani and 13.9% at CH **Table 12**.

The follow-up elements frequently recorded in the medical records of PLHIV on ART in compliance with national guidelines are the dates of clinical follow-up appointments (on average 49.6%) and the request for viral load testing (on average 33.3%). The request

for all other elements of biological monitoring, including CBC, transaminases, urea/creatine, blood sugar and triglycerides/cholesterol, is not recorded in any medical record.

The dates of appointments for clinical follow-up of PLHIV are recorded much more in the medical files at 3 months of ART (97.3%), at 6 months of ART (100%) and at 12 months of ART (4. 5%). They are very rarely recorded in the first two months of ART, i.e. on the 14th day of ART (5.4%), in the 1st month of ART (6.4%) and in the 2nd month of ART (8.2%). After 12 months of treatment, appointment dates are poorly recorded in the files: at 18 months and 24 months from ART, respectively in 59.1% and 57.3% of medical files.

Table 11: Availability of the ARV therapeutic regimen in the medical records of PLHIV on ART.

ARV therapeutic regimen	CS Libondi		CH Kingasani		CH Kinkenda		Total number (N=110)	%
	Number (n=5)	%	Number (n=48)	%	Number (n=57)	%		
TDF/3TC/DTG*	5	100.0	47	97.9	57	100.0	109	99.1

Table 12: Availability of clinical and biological monitoring elements in the medical files of PLHIV on ART.

Variables	CS Libondi		CH Kingasani		CH Kinkenda		Total number (N=110)	%
	Number (n=5)	%	Number (n=48)	%	Number (n=57)	%		
Clinical follow-up appointment dates								
D14	4	80.0	1	2.1	1	1.8	6	5.4
M1	5	100.0	1	2.1	1	1.8	7	6.4
M2	5	100.0	1	2.1	3	5.3	9	8.2
M3	5	100.0	47	97.9	55	96.5	107	97.3
M6	5	100.0	48	100.0	57	100.0	110	100.0
M9	5	100.0	17	35.4	31	54.4	53	48.2
M12	4	80.0	31	64.6	36	63.2	71	64.5
M18	2	40.0	30	62.5	33	57.9	65	59.1
M24	1	20.0	31	64.6	31	54.4	63	57.3
Average	4	80.0	23	47.9	27.6	48.3	54.6	49.6
Complete blood count (CBC)								
M6	0	0.0	0	0.0	0	0.0	0	0.0
M12	0	0.0	0	0.0	0	0.0	0	0.0
M18	0	0.0	0	0.0	0	0.0	0	0.0
M24	0	0.0	0	0.0	0	0.0	0	0.0
Average	0	0.0	0	0.0	0	0.0	0	0.0
Transaminases								
M6	0	0.0	0	0.0	0	0.0	0	0.0
M12	0	0.0	0	0.0	0	0.0	0	0.0
M24	0	0.0	0	0.0	0	0.0	0	0.0
Average	0	0.0	0	0.0	0	0.0	0	0.0
Urea/Creatinine								
M1	0	0.0	0	0.0	0	0.0	0	0.0
M2	0	0.0	0	0.0	0	0.0	0	0.0
M3	0	0.0	0	0.0	0	0.0	0	0.0
M6	0	0.0	0	0.0	0	0.0	0	0.0
M12	0	0.0	0	0.0	0	0.0	0	0.0
M24	0	0.0	0	0.0	0	0.0	0	0.0
Average	0	0.0	0	0.0	0	0.0	0	0.0
Viral load								
M6	5	100.0	46	95.8	51	89.5	102	92.7
M12	3	60.0	2	4.2	1	1.8	6	5.5
M24	1	20.0	0	0.0	0	0.0	1	0.9
Average	3	60.0	13	33.3	17.3	30.4	36.3	33
Blood sugar								
M1	0	0.0	0	0.0	0	0.0	0	0.0
M2	0	0.0	0	0.0	0	0.0	0	0.0
M3	0	0.0	0	0.0	0	0.0	0	0.0
M6	0	0.0	0	0.0	0	0.0	0	0.0
M12	0	0.0	0	0.0	0	0.0	0	0.0

M18	0	0.0	0	0.0	0	0.0	0	0.0
M24	0	0.0	0	0.0	0	0.0	0	0.0
Average	0	0.0	0	0.0	0	0.0	0	0.0
Triglycerides/Cholesterol								
M1	0	0.0	0	0.0	0	0.0	0	0.0
M2	0	0.0	0	0.0	0	0.0	0	0.0
M6	0	0.0	0	0.0	0	0.0	0	0.0
M12	0	0.0	0	0.0	0	0.0	0	0.0
M18	0	0.0	0	0.0	0	0.0	0	0.0
M24	0	0.0	0	0.0	0	0.0	0	0.0
Average	0	0.0	0	0.0	0	0.0	0	0.0
	Cumulative score (n=190)	%	Cumulative score (n=1824)	%	Cumulative score (n=2166)	%	Total cumulative score (N=4180)	%
National guidelines compliance score	45	23.7	255	14.0	300	13.9	600	14.4

Table 13: Overall score for compliance of HIV care delivery with national guidelines.

Variables	CS Libondi		CH Kingasani		CH Kinkenda		EFFECTIVE	%
	Number (n=45)	%	Number (n=432)	%	Number (n=513)	%	Total number 1 (N=990)	%
Elements of the initial assessment of PLHIV	36	80	319	73.8	351	68.4	706	71.3
	Number (n=15)	%	Number (n=144)	%	Number (n=171)	%	Total number 2 (N=330)	%
Elements of ART initiation	15	100.0	144	100.0	170	99.4	329	99.7
	Number (n=5)	%	Number (n=48)	%	Number (n=57)	%	Total number 3 (N=110)	%
ARV therapeutic regimen	5	100.0	47	97.9	57	100.0	109	99.1
	Number (n=190)	%	Number (n=1824)	%	Number (n=2166)	%	Total number 4 (N=4180)	%
Elements of clinical and biological monitoring	45	23.7	255	14	300	13.9	600	14.4
	Cumulative score (n=255)	%	Cumulative score (n=2448)	%	Cumulative score (n=2907)	%	Total cumulative score (N=5610)	%
National guidelines compliance score	101	39.6	765	31.3	878	30.2	1744	31.1

The request for viral load testing is recorded in 92.7% of files at 6 months of ART, in 5.5% at 12 months and in 0.9% of files at 24 months of ART. On average, it is recorded in 33% of files.

Level of compliance of HIV care delivery with national guidelines

Overall, HIV care provision is 31.1% consistent with national guidelines. They are more consistent with the initial assessment before initiation of ART (71.3%) than during the clinical and biological monitoring of PLHIV on ART (14.4%), and also at CS Libondi (39.6%) than at CH Kingasani (31.3%) and CH Kinkenda (30.2%) Table 13.

DISCUSSION

The general objective of our study is to evaluate the quality of care for people living with HIV in 3 ESS in Kinshasa, namely CS Libondi, CH Kingasani and CH Kinkenda. The specific objectives are todwrite the sociodemographic characteristics of PLHIV on ART, measure the level of compliance of HIV care provision with national guidelines in these three ESS and formulate recommendations for improving HIV care and public health

policies in the DRC on the quality of HIV care. Only one object of care evaluation, "procedures", among the three of the Avedis Donabedian model, i.e. "structures – procedures – results" is used to compare care provision to national guidelines.

Sociodemographic data

110 medical records of PLHIV on ART are analyzed, including 57 (51.8%) at CH Kinkenda, 48 (43.6%) at CH Kingasani and 5 (4.5%) at CS Libondi. The majority of PLHIV on ART are female (67.3%), a finding similar to that reported by Tiruneh and Woldeyohannes in Addis Ababa, Ethiopia, which is 66.7%. The average age is 40.95 years, close to that reported in Ethiopia, which is 44.2 years. The majority of PLHIV on ART do not reside in the same municipalities as their ARV supply sites: 60% outside Bumbu for CS Libondi and 70.8% outside Kimbanseke for CH Kingasani. This could demonstrate the stigmatization and discrimination of PLHIV among the population in the city of Kinshasa. However, at CH Kinkenda, almost half of PLHIV (50.9%) reside in the same commune as their Center.

Married PLHIV represent 75%. This finding is far higher than that of 41.7% made in Ethiopia. In terms of educational level, 56.4% of

PLHIV have completed secondary school. This data is higher than that of 30.5% in Ethiopia. 102 (100%) PLHIV whose nationality is mentioned in the medical files are of Congolese nationality from the DRC. The studies selected in the literature review did not provide information regarding the place of residence and nationality of PLHIV. The majority of PLHIV on ART are housewives (25.5%) and 2.7% are unemployed. The proportion of unemployed PLHIV is far lower than that of Ethiopia which is 28.9%.

Data on compliance of healthcare services with national directives

Generally speaking, compliance of HIV care provision with national guidelines in the 3 ESS is measured at 31.1%. These data are far lower than those of Ethiopia which are at 79.5% [6] and are close to those of the DRC in 2023 which are at 45% for the provision of care and screening services and 31% for those of the ART [25]. These results are all below 60%. And according to the judgment scale used by Tiruneh and Woldeyohannes in Ethiopia, the quality of HIV care provision is poor. This observation is almost similar to that of the DRC in 2023 and Uganda where the authors describe it as weak and insufficient respectively [5, 25]. This confirms our hypothesis regarding our first research question. There is therefore a need for urgent action to improve the quality of care procedures, that is to say, care delivery. The score for compliance of HIV care provision with national guidelines is 39.6% at CS Libondi, higher than that of CH Kingasani (31.3%) and the latter higher than that of CH Kinkenda (30.2%). This confirms our hypothesis that the level of compliance of HIV care services varies according to the number of patients on ART followed in an ESS, given that CS Libondi has a lower cohort of PLHIV on ART (less than 1000) to that of CH Kingasani (between 1000 and 2000) which in turn also has a smaller cohort than that of CH Kinkenda (more than 2000). This observation is contrary to that of Uganda where SSEs at the higher level (with more PLHIV on ART) are likely to respect national standards and guidelines more than those at the lower level [5].

HIV care provision is more consistent with national guidelines and the score is considered good before ART initiation (71.3%) than during clinical and biological monitoring of PLHIV on ART (14.4%) where it is considered bad. This same observation was also made in Uganda [5]. On the other hand, the results of the DRC in 2016 are qualitative and not quantitative. These authors found that patients tested positive for HIV are not well assessed at the first visit before starting ART, and after ART initiation they are not as well followed according to national standards and guidelines [9]. This makes it difficult to compare their results with those of our study.

Furthermore, the proportions of recording in the files of the following elements during the initial assessment of HIV-positive patients are higher than those of the DRC in 2016 [9]: sex (100% compared to 94.5%), weight (99.1% versus 82%), vital signs (37.3% versus 31.2%), screening date (100% versus 94.5%), 99.1% versus 87.8% for the WHO clinical stage (The data from our study are also higher than those from Uganda [5] which are 94.1%), 96.4% against 76.4% for tuberculosis screening (The data from our study are also higher than those from Ethiopia which are 85.7% [6] and those of Uganda taken separately, 3.4% for HRR and 88% for HG and CS [5]). However, the proportion of NFS application registration is 0%, lower than that of the DRC in 2016 which is 7.9% [9] and Uganda which is 44.8% [5], and far lower

than that of Ethiopia which is 85.4 [6]. And the proportion of age recording in files is almost similar to that of the DRC in 2016 [9] (97.3% compared to 98.1%). It should be noted that in the current guidelines for HIV care in the DRC, the only biological test to be requested by providers before initiation of ART is CBC, except for cases of advanced AIDS where the guidelines recommend requesting CD4.

Regarding the monitoring of PLHIV on ART, the proportions of recording in the files of the following elements are higher than those of the DRC in 2016 [9]. These are: the date of initiation of ART (99.1% versus 87.2%), 99.1% versus 83.7% for the first-line therapeutic regimen in compliance with national guidelines (Data from our study are also higher than those of Ethiopia, Uganda and the DRC in 2023, respectively at 86.3% [6], 68.9% [5] and 58% [25]), the burden viral (33% versus 0.2%). Viral load monitoring is one of the essential elements for judging the effectiveness of ART. These results show that there is a great improvement in the demand for its dosage compared to 2016 in the DRC. This demonstrates an improvement in the coverage of the laboratory network in the DRC through the optimization of the use of GeneXpert in multiplex for tuberculosis and HIV. However, healthcare providers ask for more at 6 months of treatment (92.7%), and then there is a considerable drop in demand at 12 months and 24 months of ART.

In addition, the elements whose proportions of recording in the files are lower than those of the DRC in 2016 [9] are the date of clinical follow-up appointments (on average 49.6% compared to 58.9%), demand for CBC (0% versus 4.4%), transaminases (0% versus 5.2%), urea/creatinine (0% versus 5.1%). And the proportions of recording in the request files for blood sugar (0% versus 0.8%) and triglycerides/cholesterol (0% versus 0.3%) are almost similar. That of cotrimoxazole prophylaxis is 100%, higher than the observation made in Ethiopia of 7.1% [6], in Uganda which is between 90% and 100% depending on ESS [5] and in the DRC in 2023 which is 50% [25].

CONCLUSION

In sum, our study sought to answer two questions, namely: what is the level of compliance of HIV care delivery with national guidelines in health care settings (HCFs)? and does this level vary depending on the number of people living with HIV (PLHIV) on antiretroviral treatment (ART) followed in an ESS?

The level of compliance of HIV care provision in ESS in Kinshasa was measured at 31.1%, and it was judged to be poor. This confirmed our hypothesis for the first research question. HIV care therefore requires urgent actions to improve the quality of its procedures. In the ESS, the level of compliance of HIV care provision was measured at 39.6% at CS Libondi having a cohort of less than 1000 patients on ART, at 31.3% at CH Kingasani having a cohort between 1000 and 2000 patients on ART, and 30.2% at CH Kinkenda having a cohort of more than 2000 patients on ART. These results showed that the level of compliance in HIV care provision varies depending on the number of patients on ART in an ESS, thus confirming our hypothesis for the second research question. In addition, it is higher and judged to be good at the initial assessment before initiation of ART (71.3%) than during the clinical and biological monitoring of PLHIV on ART (14.4%) where it is judged to be poor.

Furthermore, this poor quality of HIV care provision could imply, on the part of providers, poor knowledge of national guidelines or a lack of motivation on the part of the latter, and on the side of

decision-makers a weak commitment to health financing for access. to everyone with quality health care without any financial barrier, given that laboratory testing apart from viral load testing is not free. It could also imply weak implementation of health policies on the quality of care.

Finally, our study has limitations with regard to the choice of a single "care procedures" object of the Donabedian model. Which did not allow to evaluate the environment offering care to PLHIV (care structures) and the level of satisfaction of the latter (care results), and thus to show a causal relationship between the results obtained for the provision of care, the state of the care environment (care structures) and the level of satisfaction of beneficiaries. In addition, all three selected ESSs belong to the Catholic faith. This did not make it possible to have data from the public and private sector ESS. Our study was also unable to assess the technical quality of care providers, which could show whether the results obtained, were due to lack of motivation or poor knowledge of national guidelines by providers.

RECOMMENDATIONS

In view of the results obtained, the following recommendations are made.

To HIV care providers

- The study results showed that compliance of HIV care provision with national guidelines was poor. To improve this, HIV care providers are therefore recommended to respect the country's guidelines as recommended in the September 2021 updated version of the guide to integrated care of HIV/AIDS in the DRC developed by the PNLS.

- They must complete all the socio-demographic data of the patients as included in the files, set and record in the files the dates of the clinical follow-up appointments according to national directives, request and record the biological assessment before and after the initiation of the ART always in accordance with these guidelines, and request viral load testing in accordance with the guidelines.

To healthcare facilities

To improve the quality of HIV care in health care establishments, it is important to set up a functional and effective internal team to monitor and improve the quality of care provision, to organize internal knowledge or experience sharing sessions for capacity building.

At the PNLS

- Poor compliance of HIV care provision with national guidelines is believed to be due to low awareness of national guidelines by providers. It would therefore be important to strengthen the popularization of standardized protocols for the prevention and treatment of HIV (Guide for integrated management of HIV/AIDS in the DRC) and organize cascade training in HIV packages at the level of Division teams. provincial health authorities, health zone management teams and health care providers to strengthen their technical capacity;

- To improve the quality of HIV care in health care establishments, it will be necessary to strengthen the operationalization of approaches to improving the quality of care at the level of health care establishments, such as formative supervision, training missions and coaching, clinical mentoring, and supporting the implementation of functional and effective teams for monitoring and improving the quality of care provision in health care establishments;

- Our study found that there is very little literature that addresses the quality of HIV care in the DRC. It is therefore important to regularly organize surveys to assess the quality of HIV care.

At the Ministry of Health

Tests for biological monitoring of patients on ART are not subsidized, apart from viral load testing. This would be the basis of the demotivation of providers in requesting these examinations. It is important to subsidize these examinations for good monitoring of patients on ART and to make Universal Health Coverage effective.

Suggestions for future research

In view of the limitations of our study, we suggest in the future research on the evaluation of the quality of HIV care based on the three objects of the Donabedian model and the evaluation of the technical quality of care providers for the screening, treatment and clinical and biological monitoring of patients on ART. The first research will make it possible to describe the three objects, that is to say structures – procedures – results, and to show the interactions between the structures of care, the procedures of care and the results of care. In the sampling, it will be necessary to divide the ESS into strata according to the public, private or religious sector in order to have data in these three sectors. Data will be collected through interviews with healthcare staff and patients on ART, and review of medical records. And the second research will make it possible to evaluate the technical capacities of healthcare providers in the care of HIV-positive patients. Data will be collected through interviews with healthcare staff.

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