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Sociodemographic and Anthropometric Profile of People Living with Human Immunodeficiency Virus Starting Treatment in Kinshasa, Democratic Republic of the Congo

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Abstract

Context: Since the transition to Dolutegravir (DTG) in 2019, several studies have been documented on People Living with HIV (PLHIV) in the Democratic Republic of the Congo (DRC) and particularly in Kinshasa. Nevertheless, no study was found on the socio-demographic and anthropometric profile of PLHIV who start treatment in Kinshasa after 2019. **Objective:** The objective of this study is to determine the Sociodemographic and Anthropometric profile of People Living with HIV starting AntiRetroViral treatment in Kinshasa in the Dolutegravir era. **Method:** This study is a descriptive cross-sectional study to determine the socio-demographic and anthropometric profile of PLHIV starting ARV treatment in HIV Outpatient Treatment Centers (OTC) in Kinshasa. 13 OTCs were included in the study based on their expertise in caring for PLHIV and their accessibility. Socio-demographic and anthropometric data were recorded on worksheets previously tested by the team of investigators. The parameters of interest followed for the present study were: age, sex, religion, residence, level of study, marital status, occupation, economic class, height, weight, Body Mass Index (BMI), etc. **Results:** 119 patients were included in this study in accordance with the inclusion criteria; 67 (56.3%) are female. The mean age of the patients included in 39.87 ± 12.36 years. The most represented age

group is that of 36 to 45 years with 37 patients (31.9%). The average height is 1.66 ± 0.08 meters. The average weight of the patients on D0 is 56.41 ± 13.30 kg. The average BMI value through work is 21.54 ± 5.17 kg/m^2. The mean temperature of the patients at inclusion was 36.69˚C ± 0.68˚C. The majority of patients (46.1%) were married, followed by a single (33.0%), widowed (13.9%) and divorced (7.0%). Protestants were more numerous (70.7%) in the study population. More than three-fifths of patients (66.7%) have secondary education. Most of the patients (29.4%) in the study work in the informal sector. **Conclusion:** The majority of patients are female in the age group of 36 to 45 years, having an average height and weight of 1.66 ± 0.08 meters and 56.41 ± 13.30 kg respectively, with an average BMI of 21.54 ± 5.17 kg/m^2. Almost half are married patients. A large part is Protestant, has a secondary education, and works in the informal sector.

Subject Areas

Public Health

Keywords

Sociodemographic, Anthropometric, PLHIV, ART Start, Kinshasa

1. Introduction

Human Immunodeficiency Virus (HIV) infection and Acquired Immune Deficiency Syndrome (AIDS) are growing public health and development concern worldwide. In 2020, the number of People Living with HIV/AIDS (PLHIV) was estimated at 37.7 million [30.2 million - 45.1 million] and 1.5 million [1.0 million - 2.0 million] of people were newly infected with HIV/AIDS in the same year according to the United Nations Organization for the Fight against HIV/AIDS (UNAIDS), in 2020 [1].

In Sub-Saharan Africa, which remains to this day the region most affected by this epidemic throughout the world, the epidemic is very strongly carried. The World Health Organization (WHO) estimates that more than 26 million PLHIV are in SSA and that it accounts for 70% of all AIDS-related deaths worldwide [2].

The Democratic Republic of the Congo (DRC), which has a generalized and decreasing epidemic, has approximately 520,000 PLHIV with a prevalence of 1.2% in the general population according to UNAIDS in 2020 [1].

Since the transition to Dolutegravir (DTG) in 2019, several studies have been documented on PLHIV in the DRC and particularly in Kinshasa [3]-[8]. Nevertheless, no study was found on the sociodemographic and anthropometric profile of PLHIV who start treatment in Kinshasa after 2019. Hence the main objective of this study is to determine the sociodemographic and anthropometric profile of People Living with HIV starting AntiRetroViral Treatment in Kinshasa in the era of Dolutegravir.

2. Methods

2.1. Study Design, Patient and Sample Setting

The present study is a descriptive cross-sectional study to determine the socio-demographic and anthropometric profile of People Living with HIV (PLHIV) who start ARV treatment in HIV Outpatient Treatment Centers (OTC) in Kinshasa, Democratic Republic of the Congo (DRC), as part of the ARVKB 2021 cohort. The patient inclusion period was from October 4, 2021 to February 15, 2022, where all consenting patients starting AntiRetroViral Treatment (ART) in an HIV OTC were included. The following centers were included in the study because of their expertise in caring for PLHIV and their accessibility: Center IST Matonge, Center IST Victoire, Legion PIR, Saint Clément Health Center, Bondeko ya Sika Hospital, Center Hospitalier Monkole, Central Police Hospital, Saint Alphonse Health Center, Ngaba Mother and Child Center, Elonga Health Center, Esengo Health Center, Bolingo Health Center, and Masina Pilot Health Center.

Sociodemographic and anthropometric data were recorded on worksheets previously tested by the team of investigators.

2.2. Study Population

The population of this study was adults over the age of 18 at inclusion, infected with HIV and starting AntiRetroViral Treatment in the Outpatient Treatment Centers during the inclusion period (October 4, 2021 to February 15, 2022). The inclusion criteria were as follow: to be diagnosed HIV positive according to the national protocol, at least 18 years old at the inclusion of the cohort, naïve to antiretroviral treatment, and to be consenting. Each patient signed an informed consent before inclusion in the cohort.

2.3. Parameters of Interest

The parameters of interest followed for the present study were: age, sex, religion, residence, level of study, marital status, occupation, economic class, height, weight, l body mass index (BMI), etc.

2.4. Ethical Consideration

This study was approved as a whole by the research ethics committee of the School of Public Health, Faculty of Medicine, University of Kinshasa (ESP/CE/115/2021). Authorization to access the Ambulatory Treatment centers was obtained from each competent authority of the various institutions included.

2.5. Statistical Analyzes

Descriptive analyzes were performed using SPSS version 26 (Statistical Package for Social Sciences) software. Only available data were analyzed, missing data were considered completely random. Continuous variables were presented as mean ±

standard deviation.

3. Results

One hundred and nineteen (119) patients were included in this work in accordance with the inclusion criteria; 67 (56.3%) are female while 52 (43.7%) are male, giving a sex ratio of 1.29 in favor of women (Figure 1).

3.1. Anthropometric Data

The average age of the patients included is 39.87 ± 12.36 years with extremities of 18 to 69 years. The most represented age group is that of 36 to 45 years with 37 patients (31.9%) followed by that of 26 to 35 years with 24 patients (20.7%), that of 46 to 55 years with 22 patients (19.0%) and that of 18 to 25 years with 19 patients (16.4%) (Figure 2).

The average height is 1.66 ± 0.08 meters with extremities of 1.50 to 1.75 meters. The average weight of the patients on D0 is 56.41 ± 13.30 kg with extremities of 30 to 106 kg. The average value of the Body Mass Index (BMI) through the work is 21.54 ± 5.17 kg/m^2 with extremities of 12 to 30 kg/m^2. The BMI interval, in kg/m^2, the most represented is that of 18.5 to 24.9 with 19 patients (45.2%) followed by that of 15 to 18.5 with 12 patients (28.6%), that of 25 to 29.9 with 9 patients (21.4%) and that of 30 to 34.9 with 2 patients (4.8%).

The mean temperature of the patients at inclusion was 36.69˚C ± 0.68˚C with extremities of 36.0˚C to 38.70˚C.

All anthropometric data are presented in Table 1 and Table 2.

3.2. Sociodemographic Data

The majority of patients (46.1%) were married, followed by single (33.0%), widowed (13.9%) and divorced (7.0%).

Protestants were more numerous (70.7%) in the study population, followed by Catholics (20.7%) and Muslims (1.7%).

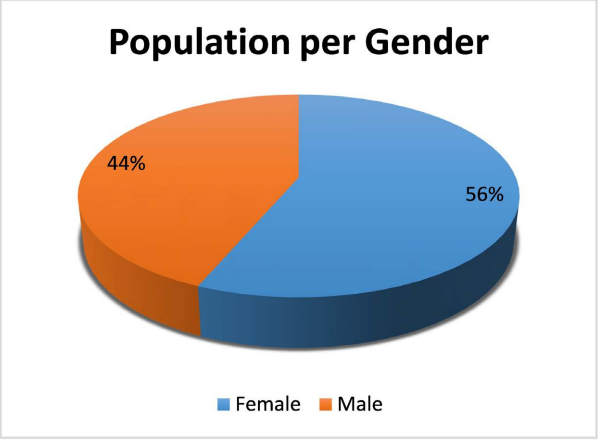

Figure 1. Population distribution by gender.

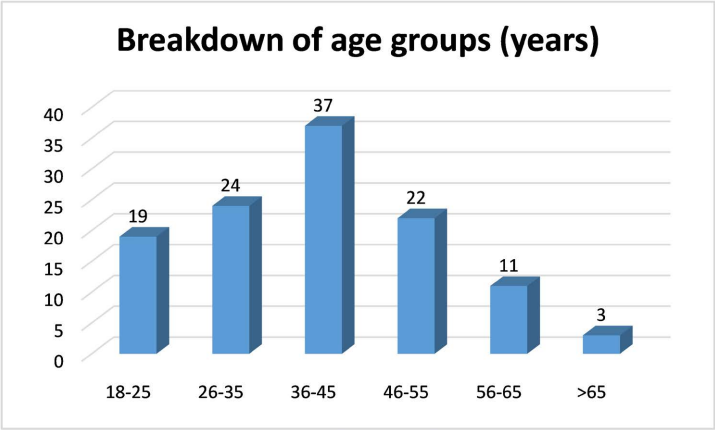

Figure 2. Breakdown of age groups.

Table 1. Distribution of the population.

Parameters	Patients	
	Values	Percentage
Sex (N = 119)		
Women	67	56.3
Men	52	43.7
Interval of age (N = 116)		
18 - 25	19	16.4
26 - 35	24	20.7
36 - 45	37	31.9
46 - 55	22	19.0
56 - 65	11	9.5
>65	3	2.5
BMI (N = 42)		
15 < 18.5	12	28.6
18.5 < 24.9	19	45.2
25 < 29.9	9	21.4
30 < 34.9	2	4.8
>35	0	0

Table 2. Mean values of patients' data at the inclusion (D0).

Parameters	Patients			
	Mean	Mean ± Standard deviation	Minimal Value	Maximal Value
Age (years)	39.87	12.36	18.00	69.00
Height (meter)	1.66	0.08	1.50	1.75
Weight (kg)	56.41	13.30	30.00	106.00
BMI (kg/m^2)	21.54	5.17	12.00	30.00
Temperature (˚C)	36.69	0.68	36.00	38.70

More than three-fifths of patients (66.7%) have a secondary level, followed by 16.7% of patients who have a primary level, 9.6% with a university level and 7.0% who are illiterate.

Most of the patients (29.4%) in the study work in the informal sector, followed by 23.5% who are traders, 14.3% housewives, 13.4% unemployed, 8.4% police and 5.0% military.

All the socio-demographic data presented above are listed in **Table 3**.

4. Discussion

The main objective of this study was to determine the Sociodemographic and anthropometric profile of People Living with HIV (PLHIV) starting AntiRetro-Viral treatment in Kinshasa during the Dolutegravir era. One hundred and nineteen patients were included in this study in accordance with the inclusion criteria in 13 Outpatient Treatment Centers (OTC) disseminated in the four districts of Kinshasa, Democratic Republic of the Congo.

Of these 119 patients included, 67 (56.3%) are female while 52 (43.7%) are male, giving a sex ratio of 1.29 in favor of women. This predominance of the female sex corresponds to the data found in the literature for Kinshasa [9] [10] [11]. This could be explained by the social and economic characteristics of African society, the biological vulnerability of women as well as the occurrence of vaginal lesions during sexual intercourse [12]. This predominance can also be explained by attendance at Prenatal Consultation (PNC) programs where HIV testing is mandatory [13].

The average age of the patients included is 39.87 ± 12.36 years with extremities of 18 to 69 years. The most represented age group is that of 36 to 45 years with 37 patients (31.9%) followed by that of 26 to 35 years with 24 patients (20.7%), that of 46 to 55 years with 22 patients (19.0%) and that of 18 to 25 years with 19 patients (16.4%). This finds its rational explanation by the fact that HIV infection affects the productive and active age group of populations, which is at the origin of enormous socioeconomic implications. This average age as well as the dominant age group agree with the result reported by UNAIDS [14] and various authors for Kinshasa [9] [10] [11] [15]. This could also be justified by the fact that this age group is the one where sexual activity is the most intense, but also because at this age the person tends to become aware of certain responsibilities [11].

The average height is 1.66 ± 0.08 meters with extremities of 1.50 to 1.75 meters. According to the literature on the reference values of the Bantu population in Kinshasa, the median height of an adult is 1.77 meters with extremities of 1.41 to 1.96 meters [16]. The patients included in the present study correspond to the data in the literature, because the population of Kinshasa, although diverse, is essentially Bantu.

The average weight of the patients on D0 is 56.41 ± 13.30 kg with extremities of 30 to 106 kg. The median weight of the population of Kinshasa is 65 kg with extremities of 40 to 102 kg [16]. Bulanda *et al.* described an average weight of

Table 3. Sociodemographic parameters.

Sociodemographic Parameter	Patients	
	Values	Percentage
Civil Status (N = 115)		
Single	38	33.0
Married	53	46.1
Divorced	8	7.0
Widowed	16	13.9
Religion (N = 116)		
Catholic	24	20.7
Protestant	82	70.7
Muslim	2	1.7
Others	8	6.9
Level of Study (N = 114)		
Analphabet	8	7.0
Primary School level	19	16.7
Secondary School level	76	66.7
University level	11	9.6
Post-University level	0	0
Professional Occupation (N = 119)		
Unemployed	16	13.4
Informal	35	29.4
Traders	28	23.5
Housewives	17	14.3
Drivers	2	1.7
Militaries	6	5.0
Police officers	10	8.4
Engineers	1	0.8
Student	4	3.4

62.70 ± 11.44 kg in a population of PLHIV starting traditional HIV treatment at different stages of infection [11]. The low average of the population studied can be explained by the first clinical signs linked to HIV infection which required screening and treatment with ARVs in an OTC.

The average value of the Body Mass Index (BMI) through the study is 21.54 ± 5.17 kg/m^2 with extremities of 12 to 30 kg/m^2. The BMI interval, in kg/m^2, the most represented is that of 18.5 to 24.9 with 19 patients (45.2%) followed by that of 15 to 18.5 with 12 patients (28.6%), that of 25 to 29.9 with 9 patients (21.4%) and that of 30 to 34.9 with 2 patients (4.8%). The range of 18.5 to 24.9 kg/m^2 is considered to be the normal BMI range based on a person's height and weight

[17]. As a result, nearly half of patients have a normal BMI at the start of treatment. This can be explained by the good clinical condition of patients at the start of ART in the cohort. These data agree with those of the literature which presented a mean BMI value of 23.08 ± 3.79 kg/m^2 for a population of PLHIV followed in Kinshasa [11].

The majority of patients (46.1%) were married, followed by single (33.0%), widowed (13.9%) and divorced (7.0%). This predominance of married patients in the cohorts of PLHIV compared to other groups is found in various studies published in Kinshasa [3] [4] [9] [10] [11]. It is explained by the social class, the economic level and the state of consciousness of the populations according to a certain age.

Protestants were more numerous (70.7%) in the study population, followed by Catholics (20.7%) and Muslims (1.7%). Here, the so-called revival churches are included in the group of Protestant churches; this inclusion has reinforced the overall vision of the people and realities of Kinshasa. Indeed, the more or less anarchic proliferation of churches and places of prayer in Kinshasa, as well as the self-proclaimed pastors and other classes of servants have increased the numbers of individuals in these beliefs throughout the last years in the city and across the country [18] [19]. This predominance is consistent with the data available in the literature for Kinshasa [11].

More than three-fifths of patients (66.7%) have secondary level, followed by 16.7% of patients who have primary level, 9.6% with university level and 7.0% who are illiterate. According to the Demographic and Health Survey (DHS) conducted in the Democratic Republic of the Congo, the level of education in the country and even in Kinshasa is low, reflecting the shortcomings in the level of schooling and development [9]. These data are also in agreement with the literature which presents a high rate of the population with a secondary education level [3] [4] [9] [10] [11] [20].

Most of the patients (29.4%) in the study work in the informal sector, followed by 23.5% who are traders, 14.3% housewives, 13.4% unemployed, 8.4 % police and 5.0% military. The high rate of unemployment in the general population has created the resource economy in Kinshasa; it increased the informality of services and employment, as well as legal and informal trade in the city to capture income in a context of institutional weakening [21]. This justifies the high rate of patients working informally in the present cohort.

5. Conclusion

The main purpose of this study was to determine the sociodemographic and anthropometric profile of People Living with HIV (PLHIV) starting AntiRetroViral treatment in Kinshasa during the Dolutegravir era. The results show a picture in the context of ARV treatment in the era of Dolutegravir in a resource-limited setting. The majority of patients are female in the age range of 36 - 45 years, having an average height and weight of 1.66 ± 0.08 meters and 56.41 ± 13.30 kg respec-

tively, with a BMI average of 21.54 ± 5.17 kg/m^2. Almost half were married patients. A large part was Protestant, had a secondary education, and worked in the informal sector.

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Authors' Contribution

EKN, BBI: Design of the research project. GBM, MTS: Reading and amendment of the research project. BBI, LLO, NDM, GBM, SSM, TNK, JNE, CKA: Data collection and analysis. EKN, GBM, MTS: Analysis and interpretation of data. EKN, LSO, NDM: Writing the first manuscript. BBI, GBM, MTS: Critical review of the final version of the article. All authors have read, corrected and approved the final version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest for this study.

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List of Abbreviations and Acronyms

ART: AntiRetroViral Treatment;

ARV: AntiRetroViral;

BMI: Body Mass Index;

DTG: Dolutegravir;

DRC: Democratic Republic of the Congo;

HIV: Human Immunodeficiency Virus;

Kg: Kilogram;

OTC: Outpatient Treatment Center;

PLHIV: Person Living with Human Immunodeficiency Virus.