

Factors Associated With Non-Adherence To Antiretroviral Treatment In The City Of Kisangani In The Drc

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Abstract

Introduction: The Human Immunodeficiency Virus and AIDS (HIV/AIDS) epidemic continues to mourn humanity. The population's resistance to compliance or adherence to antiretroviral treatment is a major obstacle to achieving the 95-95-95 targets. The objective pursued in this study is to determine the factors associated with non-compliance with antiretroviral treatment in the city of Kisangani. **Methods:** We conducted a cross-sectional descriptive study with an analytical aim in the city of Kisangani from March 01 to June 30, 2021. The study population consisted of people living with HIV (PLHIV), aged at least 18 years old. and on antiretroviral treatment who freely consented to answer the questions. 423 PLHIV on antiretroviral treatment (ART) were recruited at the end of drug withdrawal appointments after obtaining a convenience sample. The assessment of compliance was based on the count of tablets remaining in the box on the day of restocking, the missed appointment and the number of days of antiretroviral stockout. The determinants of non-compliance were sought by multiple logistic regression during our data analyses. **Results:** The average age of respondents was 39.2 ± 11 in the general population. The overall non-adherence to treatment frequency was 21.5%. Marital status (ORaj: 1.14; 95% CI: 0.701-1.897; $p = 0.007$), Occupation (ORaj: 0.72; 95% CI: 0.435-1.184; $p = 0.1732$), Breaking on ARV (ORaj: 0.1; IC95%: 0.01-0.6134; $p = 0.001$) was a protective factor against non-adherence, the absence of fixed accommodation can worsen the disease (ORaj: 60.16 IC 95% : 23.46-163.76); $p=0.001$) and the undisclosed serological status at family (ORaj: 407.33 IC 95% : 79.52-3656.09); $p=0.0001$) emerged as determinants of non-adherence. **Conclusion:-** The frequency of non-adherence to antiretroviral treatment remains high in Kisangani. Taking determinants into account will be necessary to define strategies that will improve observance in order to boost the third objective 95 because good adherence to ARV treatment is an important parameter in viral suppression.

Keywords: Factors, non-adherence, antiretroviral treatment, Kisangani, DRC.

INTRODUCTION

A major public health problem, the Human Immunodeficiency Virus and AIDS (HIV/AIDS) epidemic continues to mourn humanity. This infection has been widely documented and there is great potential for its reduction if the community and ethnic groups adhere to the recommendations of the international community [1].

The number of people living with HIV globally was estimated at 38.4 million in 2021; 82.2 million people have been infected and 41.1 million deaths since the discovery of the disease [2]. However, a large proportion of patients are found in Africa; 16.2 million in East and Southern Africa, 3.9 million in West and Central Africa, unlike other regions of the world which have relatively low rates such as Pacific Asia; 4 million and Latin America 1.5 million [2]. The prevalence of HIV/AIDS in the Democratic Republic of Congo (DRC) was estimated at 1.2% in the general population [3].

In the fight against HIV, the 95-95-95 targets were launched in 2014 by the Joint United Nations Program on HIV/AIDS (UNAIDS) with its partners, to diagnose 95% of people with HIV, provide antiretroviral therapy (ART) to 95% of people diagnosed and to achieve viral suppression for 95% of people treated by 2025. had access to antiretroviral treatment and 68% of them had their viral load suppressed according to UNAIDS 2021 estimates (2). Achieving these targets will result in viral load suppression of 73% of HIV-positive people, a crucial step towards ending the AIDS epidemic by 2030 [4]. However, there is still resistance from the population regarding compliance or adherence to antiretroviral treatment, which constitutes a major obstacle to achieving the aforementioned objectives. In the DRC, the 2018 annual report of the National Program for the Fight against HIV and Sexually Transmitted Infections (STIs) indicates that regarding the coverage of the service offer, 512,650 people were estimated to be living with HIV. Of these people, only 51% knew their HIV status, 50% were put on antiretroviral (ARV) treatment and 12% had a suppressed viral load (taking into account Spectrum targets). Regarding the control of the epidemic and taking into account only people who had access to the service, 51% learned of their serological status, 98% were put on ARV treatment, of which 33% had access to the viral

load with 74% suppression [5]. Adherence to ARV treatment is a key indicator for evaluating response to treatment and also an important factor for viral suppression. The objective of this study is to determine the factors associated with non-adherence to antiretroviral treatment in the city of Kisangani.

MATERIAL AND METHODS

This study was conducted in the city of Kisangani, Tshopo province in the Democratic Republic of Congo. This city has a total population of 1602144 distributed in 5 health zones. A total of 66 health facilities have integrated the complete HIV package in these five health zones.

Our study population consisted of people living with HIV-AIDS on ARVs aged at least 18 years.

We carried out a cross-sectional descriptive study for analytical purposes during the period from March 1 to June 30, 2021. Probability sampling was used to select subjects from people living with HIV (PLHIV) on ARVs. The determination of the sample size was made using the following formula

$$n = \frac{(Z\alpha^2 \times p \times q)}{d^2}$$

For a confidence coefficient of 1.96, the proportion of PLHIV on ARV who adhere to treatment of 0.50, the proportion of PLHIV who do not adhere to ART of 0.50, the desired degree of precision at 0.05 and a risk of error of 0.05.

Based on the parameters above, we obtained a minimum sample size of 384 people. Considering a non-response rate of 10%, the sample size was reduced to 423 PLHIV.

Were included in the study, PLHIV taking the ARV treatment aged 18 and having freely consented to answer the questions. To collect data, the PLHIV taking the ART were recruited at the end of drug collection appointments after obtaining consent. We used interviews using a questionnaire. The assessment of adherence was based on the count of tablets remaining in the box on the day of restocking, the missed appointment and the number of days of shortage of the ARVs were also taken into account. The dependent variable was adherence to treatment. The independent variables were: age, sex, marital status, level of education, profession, time since diagnosis, time since ARV treatment, availability of the ARVs, having benefited from adherence counselling, being affiliated to a self-support group, having adherence support. In addition, the reasons for non-compliance were collected from non-compliant people.

Data collected were entered in Excel and the analyzes were made using STATA 13 software. The descriptive statistics focused on the proportions for the categorical variables, the mean and standard deviation for the quantitative variables with symmetric distribution, the median and the range of variation for the so-called asymmetric variables. Pearson's Chi-2 test, ** KRUSKAL-WALLIS was performed to assess the dependence of qualitative variables on non-adherence. Student's t test was performed to compare means for normally distributed data. Multiple logistic regression was used to search for determinants of non-adherence. Those which had a significant value in univariate were generally retained in multivariate.

RESULTS

Results of factors related to non-adherence to treatment

Table I: Sociodemographic characteristics of respondents

N°	Variables	n= 423	%
1	Age (year)		
	Mean ± DS	39.2±11.2	
	18-24	36	8.51
	25-31	84	19.86
	32-38	85	20.09
	39-45	94	22.22
2	> 45	124	29.31
	Sex		
2	Male	147	34.75
	Female	276	65.25
3	Education level		
	None	44	10.4
	Primary	25	5.91
	Secondary	258	60.99
	Superior/University	96	22.7
4	Marital status		
	Single	148	34.99
	Married	188	44.44
	Divorced	39	9.22
	Widower/widow	48	11.35
5	Religion		
	Catholic	187	44.21
	Protestant	89	21.04
	Musselman	61	14.42
	revival church	38	8.98
	Kimbaguist	48	11.35
6	Main occupation		
	None	194	45.86
	Civil servant	106	25.06
	Trader	114	26.95
	Farmer	5	1.18
	Fisherman	4	0.95

It appears in this table No. 1 that the average age is 39.2 ± 11.2; the male sex was the most represented (65.48%), the majority of respondents were at secondary level (60.99%), married people were the most represented (44.44%) and most did not have an occupation main (45.86%) and more respondents were from the catholic church.

Table II: Clinical and therapeutic characteristics of respondents

N°	Variables	n= 423	%
1	Time since screening (year) Median (P75-P25)	4 (7-2)	
2	Duration on ART (year) Median (P75-P25)	4 (7-2)	
3	Place of supply Health training Distribution Point	423 0	100 0
4	Rhythm of ARV supply Monthly Bimonthly Trimestriel	287 132 4	67.85 31.21 0.95
5	Known ruptures in ARV ye No	209 214	49.41 50.59
6	Number of tablets missed Mean ± DS	5.9±6.6	
7	Appointment respect Yes No	332 91	78.49 21.51
7	ART adherence Yes No	332 91	78.49 21.51

From this table we note that the median, P75 and P25 were the same for the duration of screening and the ARV treatment. 100% of our respondents obtained the ARVs from the health facilities (FOSA) and most of them at a monthly rate, i.e., 67.85%. Almost half or 49.41% experienced the rupture of ARVs and the average missed tablet among the 21.5% of non-observant and non-compliance with the appointment was 5.9 ± 6.6 .

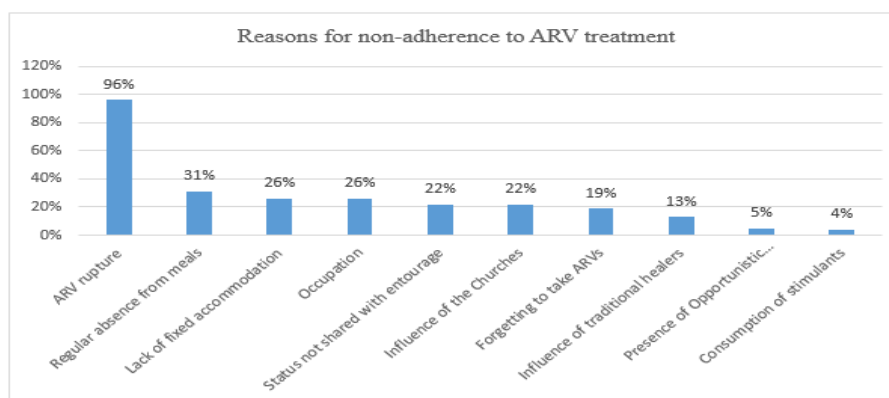


Figure 1: Reasons for non-adherence to ARV treatment

This figure shows that 96% of our respondents had not observed ARV treatment following ARV shortages, 31% mentioned the absence of regular meals. There was parity between the absence of a fixed dwelling and occupation, even for the unshared status in the entourage and the influence of the churches. The other 4 reasons came out in less than 20%.

Table III: Clinical and sociodemographic characteristics according to the adherence to ARV treatment

N°	Characteristics	n=423	Patients no observing		OR (IC 95%)	p
			Freq	%		
1	Range age (year)					0.631
	18-24	36	11	30.56		
	25-31	84	19	22.62		
	32-38	85	17	20		
	39-45	94	17	18.27		
2	Sex					0.1131
F	276	53	19.2	1.46(0.8832-2.4197)		
	M	147	38	25.85		
3	Education level					< 0.001
	None	25	12	48		
	Primary	44	8	18.18		
	Secondary	258	42	16.28	3.72 (1.4860-9.2089)	
	Superior/University	96	29	30.21		
4	Marital status					0.007
	Single	148	23	15.54		
	Married	188	38	20.21		
	Divorced	39	14	35.90	1.14(0.7011-1.8948)	
	Widower	38	16	42.11		
5	Main occupation					0.1732
	None	194	36	18.56		
	Civil servant	106	37	34.91		
	Trader	114	17	14.91	0.72 (0.4355-1.1848)	
	Firmer	5	0	0.00		
	Fisherman	4	1	25.00		

This table provides information that clinical and socio-demographic characteristics according to observance to ARV treatment, more cases of non-adherence were in the age group of 18-24 and over, i.e., 30%, 25.85% for males, 48 % for those with no level, 42.11% for widows/widowers and 37% for civil servants. Marital status and level of education showed significance, but age, sex and occupation did not.

Table IV: Distribution of surveys according to factors associated or not with non-adherence to ART

N°	Characteristics	n	Non-observing patients		OR raw (IC 95%)	p
			Freq	%		
1	Availability of ARV					< 0.001*
	Yes	419	87	20.76	0 (0-0.2551)	
	No	4	4	100		
2	ARV rupture					0.001*
	Yes	206	49	23.79	0.1(0.01-0.6134)	
	No	8	6	75		
3	Treatment Adherence Counseling					0.6376*
	Yes	412	88	21.44	0.7(0.1696-4.3294)	
	No	11	3	27.23		
4	Adherence aid					0.904*
	Yes	165	35	21.21	0.97(0.5836-1.6024)	
	No	258	56	21.71		
5	Duration on ART (year)					
	Average (±DS)			5.06±3.70		0.367**
	< 3	191	39	20.42		
	3 à 5	119	28	23.53		0.808*
	≥ 6	113	24	21.24		
6	No respect of appointment					0.0125*
	Yes	239	62	25.94	0.53(0.3167-0.8996)	
	No	183	29	15.85		
7	Number of days off					
	Average (±DS)			1.25±0.43		< 0.001**
8	Membership in a self-help group					0.841
	Yes	76	17	22.37	1.06(0.5471-1.9826)	
	No	347	74	21.23		
9	Lack of fixed accommodation					< 0.001*
	Yes	67	59	88.06	60.16(23.46-163.76)	
	No	174	19	10.92		
10	ARV Side Effects					< 0.001*
	Yes	49	45	91.84	117(34.48-48.67)	
	No	171	15	8.77		
11	Serological status not disclosed to entourage					< 0.001*
	Yes	49	47	95.92	407.33(79.52-3656.09)	
	No	165	9	5.45		
12	Consumption of stimulants					< 0.001*
	Yes	9	7	78.78	13(2.32-130.60)	
	No	198	42	21.00		

* χ^2 Pearson, ** KRUSKAL-WALLIS

From this table it emerges that from the distribution of the surveys according to the factors associated or not with non-adherence on the ART, the availability and shortage of the ARVs, the number of days of stopping taking, the absence of fixed accommodation, the serological status not disclosed to the entourage, belonging to a self-support group, and the consumption of stimulants have shown an association with non-adherence to the ARV treatment, on the other hand advice for adherence to treatment, help in adherence, adherence support, duration of ARV treatment, and non-compliance with appointments were not related to adherence.

Table V: Determinants of ART non-adherence among PLHIV in multivariate analysis

N°	variables	OR adjusted	IC 95%	P
1	Sex			
	Female	NA		0.2059
	Male	NA	NA	
2	Study level			
	None and primary	NA		0.5802
	secondary and university	NA	NA	
3	Marital status			
	Single (divorced et widower)	NA		0.2407
	Lives with a spouse (married)	NA	NA	
4	Duration on ART (year)			
	< 3	1		0.435
	3 à 5	0.47	(0.070-3.12)	
≥ 6	13.23	(0.409-427.14)		
5	Lack of fixed accommodation			
	No	NA		0.2533
	Yes	NA	NA	
6	Membership in a self-help group			
	Yes	NA		0.939
	No	NA	NA	
7	ARV Side Effects			
	Yes	1		0.004
	no	40.41	(3.35-489.63)	
8	Serological status not disclosed to entourage			
	No	1		<0.0001
	Yes	174.72	(13.47-2265.6)	
9	ARV rupture			
	No	1		0.002
	Yes	0.023	(0.002-0.261)	

It emerges from this table that the fact of not disclosing one's serological status to those around them multiplies the possibility of non-compliance with ARV treatment by around 174.72 times, 40.41 times for the side effects of ARVs and 13.23 for the duration of ARV treatment.

DISCUSSION

As part of our study carried out in the city of Kisangani, we identified the factors associated with non-adherence to antiretroviral treatment among PLHIV in Kisangani. The specific objectives retained were to determine the percentage of adherence to ART among PLHIV and to analyze the factors associated with non-adherence to ARVs among certain people who tested positive in the five health zones of the city of Kisangani.

The reasons for non-adherence in the present study were: lack of fixed accommodation and HIV status not disclosed to family and friends were two major factors that emerged after the multivariate analyses. Lack of regular meals, side effects of medication, forgetfulness, occupation, marital status, influence of churches, influence of traditional healers, consumption of stimulants, presence of opportunistic infections, and discontinuation of ARVs were also cited among the factors associated with non-compliance. -adherence to antiretroviral treatment. Several reasons for non-compliance have been reported by other researchers. Benilde et al [6]. have reported among the reasons for non-compliance: forgetfulness, adverse effects, lack of money to pay for transport or consultation, out of stock, travel, fatigue, in other studies, factors such as forgetfulness, difficulty paying for transportation and consultation, out of stock, lack of food, travel, fatigue, consumption of alcoholic beverages, side effects of treatment, fatigue, depression and stigma [7-9].

In our study, forgetting was the most mentioned cause of non-compliance. These results differ from those observed in northern countries where drug-related reasons have been reported as the primary causes of non-adherence [10, 11].

Another factor significantly associated with non-adherence was the long duration of treatment. This result corroborates those found by Benilde et al [6] and Mbopi et al. [12]. The duration of treatment is described as a fatigue factor in several studies including the study [13]. Long disease duration was associated with non-adherence. This result agrees with that of Silva et al [14]. This could be due to the fact that the more chronic the disease, the less compliance with the doctor's recommendations [14].

Patients who had side effects were less observant than those who did not. These results are similar to those of Issifou et al. Saha et al [15] and de Silva et al. [14]. In several studies, the authors agree that the greater the adverse effects, the less the patient will tend to be observant [13, 15].

Patients who did not tell trusted people about their illness were less observant than those who told them. This result is corroborated with the result of Folefack et al [16].

It should be noted that during the multivariate analysis of our data, six factors identified the factors associated with non-adherence to antiretroviral treatment. These are forgetfulness, adverse effects, lack of money to pay for transport or consultation, out of stock, travel, fatigue, recovery according to patients, travel; on the other hand, Benilde et al [6] found that the payment of the consultation, the adverse effects and the lack of perception that missing a dose can worsen the disease [6].

Medication side effects are also recognized as factors associated with nonadherence in our study, a situation consistent with studies conducted by other researchers who have found that. The side effects of drugs upset patients and depress them, preventing them from taking their ARVs regularly [17, 14, 18]. Contrary to the other authors in our study, knowledge of the treatment by a trusted person was not protective against non-adherence to treatment, on the other hand, Benilde et al [6], Kanté et al [19] found that the person of confidence reinforces compliance by fortifying the patient on taking ARVs.

CONCLUSION:

The frequency of non-adherence to antiretroviral treatment remains high in Kisangani. Taking determinants into account will be necessary to define strategies that will improve compliance in order to boost the third objective 95 because good adherence to the ARV treatment is an important parameter in viral suppression.

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