

Therapeutic Non-Adherence among People Living with HIV Followed at a Referral Center in Dakar, Senegal

Mouhamadou Thiam^{1,2*}, Aboubakar Sidikh Badiane¹, Mouhamadou Baïla Diallo¹, Abdou Faye¹, Nogaye Diouf¹, Maguette Sene¹, Ndella Dieye¹, Harouna Ousmane Sow³, Daouda Thioub¹, Mame Diarra Diouf¹, Amath Faye¹, Mouhamadou Moustapha Gueye⁴, Aby Sow¹, Judicaël Malick Tine¹, Moussa Seydi¹

¹Department of Infectious and Tropical Diseases, Fann University Hospital, Dakar, Senegal

²Laboratory of Pharmacology and Pharmacodynamics, Faculty of Medicine, Pharmacy and Odontology, Cheikh Anta Diop University (UCAD), Dakar, Senegal

³Faculty of Medicine, Pharmacy and Odontology, Cheikh Anta Diop University (UCAD), National Blood Transfusion Center, Dakar, Senegal

⁴Laboratory of Medical Biochemistry, Faculty of Medicine, Pharmacy and Odontology, Cheikh Anta Diop University (UCAD), Dakar, Senegal

Email: *mouhamadou11.thiam@ucad.edu.sn

How to cite this paper: Thiam, M., Badiane, A.S., Diallo, M.B., Faye, A., Diouf, N., Sene, M., Dieye, N., Sow, H.O., Thioub, D., Diouf, M.D., Faye, A., Gueye, M.M., Sow, A., Tine, J.M. and Seydi, M. (2026) Therapeutic Non-Adherence among People Living with HIV Followed at a Referral Center in Dakar, Senegal. *Pharmacology & Pharmacy*, 17, 278-290.

<https://doi.org/10.4236/pp.2026.179016>

Received: August 24, 2026

Accepted: September 25, 2026

Published: September 28, 2026

Copyright © 2026 by author(s) and Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Introduction: Significant successes in the fight against HIV have been achieved, in part, thanks to triple antiretroviral therapy. The efficacy of antiretroviral treatment relies heavily on strict and sustained treatment adherence. However, many patients living with HIV face challenges regarding adherence. This study was conducted to evaluate the determinants of treatment non-adherence over the preceding six months among people living with HIV (PLHIV) receiving care at a referral center in Dakar. **Patients and Methods:** This was a descriptive, prospective, observational study using a mixed-methods (quantitative and qualitative) approach, involving PLHIV receiving care at the Infectious Diseases Department of FANN Hospital between January 1 and November 30, 2025. **Results:** During the study period, we interviewed 200 individuals seen at the hospital pharmacy unit. The median age was 50 years, with an interquartile range of 36 to 59 years. The 40 - 59 and 20 - 39 groups were the most represented, at 47.00% and 29.50%, respectively. There was a predominance of women (57.00%). In our study, 36% of patients were married and 11.00% were widowed. The partner's serological status was known for more than half of the patients (68.18%). Among those with known status, 41.00% had a partner who tested positive for HIV infection. The vast majority of patients were receiving a dolutegravir (DTG)-based treatment regimen (93.5%).

Most patients adhered to prescription renewal schedules (88.50%) and took their medication as prescribed (94.00%). Furthermore, 19.00% of patients arrived at their appointment with no remaining tablets, while 71.00% arrived with 1 to 4 tablets remaining. Approximately 10.00% of patients were non-adherent. The main reasons cited were forgetfulness (40.00%) and travel (25.00%). Additionally, a lack of financial resources and transportation difficulties were each reported by 5.0% of patients. **Conclusion:** Approximately one in ten patients in our study exhibited non-adherence to treatment. The primary causes reported were forgetfulness and travel. These results highlight the importance of strengthening adherence support strategies to sustainably improve treatment adherence.

Keywords

HIV, Adherence, Dakar

1. Introduction

HIV (human immunodeficiency virus) is a virus that attacks the immune system, weakening the body's ability to fight infections and certain diseases [1]. It is primarily transmitted through sexual contact, blood, or from mother to child [2]. Without treatment, it can progress to AIDS, an advanced stage of infection characterized by severe opportunistic infections, and an increased risk of mortality [3]. Globally, approximately 41.0 million people were living with HIV at the end of 2025, with 64% located in the African region [4]. In 2024, approximately 570,000 people died from HIV-related causes, and 1.2 million were newly infected [4]. However, between 2010 and 2024, new infections fell by 40% and deaths by 54% (UNAIDS 2024). These notable successes were achieved through behavioral changes, the prevention of mother-to-child transmission, and, above all, antiretroviral treatment [5]. The long-term efficacy of antiretroviral treatment leads to viral load suppression, thereby yielding beneficial effects at both individual and community levels by eliminating the risk of transmission [4]. According to UNAIDS, antiretroviral therapy helped prevent approximately 1.8 million AIDS-related deaths in 2024. Since 1996, access to antiretroviral therapy is estimated to have prevented approximately 26.9 million deaths worldwide [6]. However, failure to adhere to prescribed antiretroviral treatment remains a major obstacle to treatment efficacy.

Despite the progress made, non-adherence to HIV treatment remains a global issue, particularly in Africa. Overall, rates of non-adherence vary significantly across regions and studies, with some figures indicating non-adherence levels of around 23% in Africa and 36% in a combined Africa-North America dataset [7]. Challenges regarding treatment adherence can be linked to social, psychological, economic, and therapeutic factors [8]. Several studies have shown that non-adherence to treatment poses a major obstacle to effective viral load control, foster-

ing the emergence of drug resistance, progression to AIDS, and increased morbidity and mortality [9] [10].

Senegal is one of the countries in the region that committed early to the fight against the HIV pandemic. The Senegalese Initiative for Access to Antiretrovirals (ISAARV) was launched as early as 1998, and a 2003 presidential decree guaranteed the availability and free provision of antiretrovirals nationwide [11]. Thanks to these efforts, the country has made notable progress, seeing a steady decline in new infections and deaths [12]. However, long-term treatment non-adherence remains a challenge. Data on non-adherence in Senegal vary, with reported rates ranging from 20% to 73.33%, depending on the populations studied and the assessment methods used [13] [14]. The Department of Infectious and Tropical Diseases at the Fann University Hospital (CHNU de Fann) serves as a national reference center for the care of people living with HIV (PLHIV). It operates a hospital pharmacy that not only dispenses antiretrovirals (ARVs) but also assists physicians with patient monitoring. Under the National Strategic Plan for an integrated multisectoral response to AIDS, tuberculosis, viral hepatitis, and STIs (2023-2030), optimizing the quality of screening, treatment, care, and support services is a key priority. To achieve this, it is essential to assess treatment adherence among PLHIV in order to better tailor adherence support strategies. It is against this backdrop that we conducted this study to determine the prevalence of non-adherence over the past six months and to identify the reasons associated with it.

2. Patients and Methods

2.1. Study Design

This was a quantitative, observational, prospective, descriptive study conducted among people living with HIV (PLWH) receiving follow-up care at the Infectious Diseases Department of Fann Hospital in Dakar, Senegal, over the period from January 1 to November 30, 2025. The study population consisted of all PLHIV in the active patient cohort who attended consultations as part of their follow-up care. Patients who received their medication from the hospital pharmacy unit and consented to be interviewed were included. Hospitalized patients and unregistered patients (those visiting for emergency medication supply) were excluded from the study. Sample size determination the sample size was calculated using the sample proportion formula provided by the online statistical tool Open AI. We used an estimated non-adherence prevalence of 20%. The active cohort of patients under follow-up comprised 1005 PLHIV. Based on a 5% margin of error and a 95% confidence interval, a minimum of 198 participants was required for this study. A total of 200 participants were recruited. Participants were consecutively recruited from the active cohort of people living with HIV (PLHIV) who met the eligibility criteria.

2.2. Data Collection

Data were collected through patient interviews and recorded on survey forms and

in patient medical records. Each patient had an individual survey form containing the following data: epidemiological characteristics (age, sex, marital status, partner's status, place of residence), therapeutic characteristics (treatment regimen, duration of treatment, treatment reminders, and adverse effects), and aspects related to treatment adherence (adherence to prescription refills, compliance with the prescription, pill count at the visit, and reasons for non-adherence).

2.3. Assessment of Treatment Non-Adherence

Treatment adherence was measured using three methods. Appointment adherence was assessed as a dichotomous variable (yes/no). A patient was considered to have adhered to appointments if they attended the scheduled consultations for follow-up and treatment renewal. This information was verified against prescriptions and medical records. Medication intake compliance relative to the physician's prescription was also assessed; patients who did not take their medication according to the prescription were considered non-adherent.

The primary criterion for assessing adherence was the pill count of remaining tablets. The adherence ratio is calculated as the ratio of doses taken to doses prescribed, expressed as a percentage. At each visit, the number of antiretroviral tablets dispensed was determined based on the daily dosage and the period expected until the next appointment. The quantity dispensed therefore corresponded to the number of tablets required to cover exactly the interval between two appointments. At the subsequent appointment, the number of remaining tablets was counted and compared with the number of tablets that should have been taken during the elapsed period. Theoretically, when a patient correctly adhered to their treatment and attended the appointment on the scheduled date, no tablets should have remained. The presence of remaining tablets was considered an indication of missed doses. Among patients receiving multiple antiretroviral drugs, the pill count took into account all prescribed antiretroviral medications and their respective dosing regimens. The number of doses refers to the total of all prescribed antiretrovirals. A patient is considered adherent if the adherence ratio is 95% and non-adherent if the ratio is <95%.

2.4. Data Entry and Analysis

Data were analyzed using RStudio version 2026.07.0. Following the categorization of variables according to predefined criteria, qualitative variables were expressed as counts and percentages, while quantitative variables were expressed as mean and standard deviation (for normal distributions) or median and interquartile range (for non-normal distributions).

2.5. Ethical Considerations

This study was conducted in accordance with ethical principles for biomedical research. Prior authorization was obtained from the department head. Confidentiality was ensured through the use of identification numbers to maintain anonymity.

3. Results

3.1. General Characteristics of the Study Population

A total of 200 patients were included in the study. The median age was 50 years (IQR: 36 - 59 years). The 40 - 59 age group was the most represented (47.00%). Women accounted for 57.00% of the population. The majority of patients were married (36.00%) and resided in the suburbs of Dakar (42.50%). Regarding education level, secondary education was the most common (34.00%), and 14% of patients had received no formal education. The serological status of the partner was known in 68.18% of cases; among these, 41% were seropositive. The vast majority of patients were receiving a dolutegravir (DTG)-based treatment regimen (93.5%) (**Table 1**).

Table 1. Baseline characteristics of the study population 36.

Parameters	Effectives (%)
Age in year	
Under 19	2 (1.00)
20 - 39	59 (29.50)
40 - 59	94 (47.00)
Over 60	45 (22.50)
female sex	114 (57.00)
Marital statut	56 (28.00)
Divorce	22 (11.00)
Maried	72 (36.00)
widowed	39 (19.50)
Not specified	11 (5.50)
Single	56 (28.00)
Polygamous union	27 (37.50)
Partner's serological status	15 (68.18)
Partners positive	20 (41.00)
Adress	
Dakar	32 (16.00%)
Dakar-Banlieue	85 (42.50%)
Autres régions	76 (38.00%)
Not specified	7 (3.50)
Education level	
University	35 (17.50)
Secondary	68 (34.00)
Primary	36 (18.00)
Quaranic	18 (9.00)

Continued

None	28 (14.00)
Not specified	15 (7.50)
Therapeutic regimen	
DTG based	187 (93.50)
NNTRI based	9 (4.50)
Ral based	1 (0.50)
Not specified	3 (1.50)
Follow-up duration > 12 months	183 (91.50)

3.2. Methods for Treatment Reminders

For three-quarters of the patients, the reminder method was psychological; 18% used an alarm (**Figure 1**).

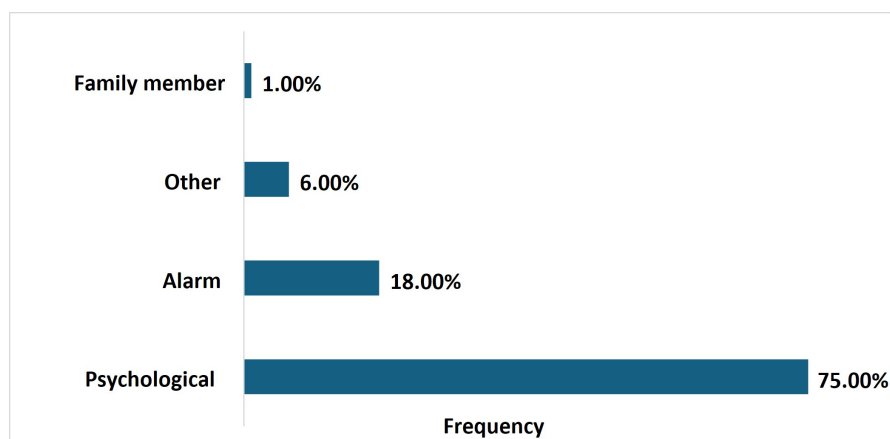


Figure 1. Distribution by method of follow-up for HIV-positive patients receiving treatment from the hospital pharmacy.

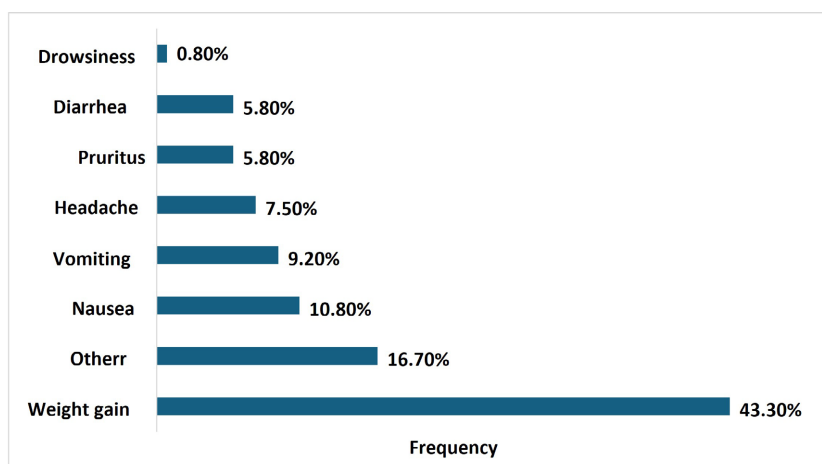
3.3. Distribution by Adverse Effects

Figure 2. Distribution of adverse effects experienced by people living with HIV visiting the hospital pharmacy.

More than half of the patients (60%) reported at least one adverse effect during their follow-up. Weight gain was observed in 43.3% of patients and vomiting in 9.20% (**Figure 2**).

3.4. Aspects Related to Treatment Adherence

The majority of patients (89.00%) adhered to prescription renewals (**Table 2**). It was estimated that 94.00% of patients took their medication in accordance with the prescription. Regarding the number of tablets remaining at the time of assessment, the majority of patients (71.00%) had 1 to 4 tablets left.

Table 2. Indicators of treatment adherence among the patients studied.

Parameters	Effectifs (%)
Prescription renewal compliance	177 (88.50)
Prescription compliance	188 (94.00)
Remaining Tablet Numbers	
0	38 (19.00)
1 - 4	142 (71.00)
≥5	20 (10.00)

3.5. Reasons for Treatment Non-Adherence According to the Patient

Twenty out of 200 participants were classified as non-adherent, corresponding to a prevalence of 10.0% (95% CI: 6.6 - 14.9%). Forgetting (8/20, 40%) and travel (5/20, 25%) were the most frequently cited reasons. Lack of financial resources, transportation difficulties, and other reasons were each reported by 1 participant (1/20, 5%) (**Figure 3**).

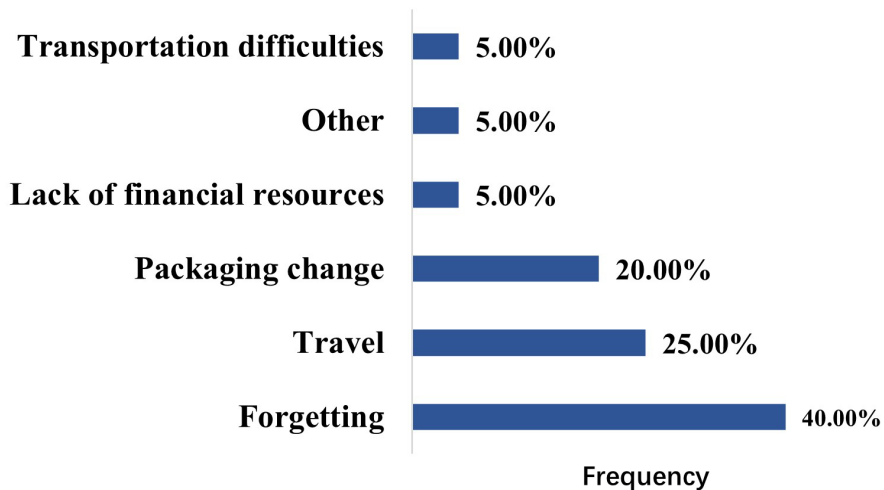


Figure 3. Distribution of reasons for therapeutic non-adherence among people living with HIV visiting the hospital pharmacy.

4. Discussion

The majority of our patients were on a dolutegravir (DTG)-based therapeutic regimen (93.50%). This trend aligns with data published by Loosli *et al.* [15], where 91.6% of patients were on a DTG-containing regimen. The widespread use of this regimen reflects 2018 first-line recommendations from ISAARV and the WHO, which advocate using this combination therapy as the initial treatment for all HIV-infected adults and adolescents [16]. For three-quarters of the patients, the reminder method was psychological; 18.00% used an alarm. In a study conducted in China, the majority of patients (89.75%) used a telephone reminder [17]. Mobile phone reminders (SMS and calls) improve treatment adherence and efficacy, as demonstrated in numerous studies [18]-[20]. Therefore, it is necessary to promote the use of electronic reminder methods among our patients.

More than half of the patients (60.00%) reported at least one adverse event during follow-up. Weight gain was observed in 43.30% of patients, and vomiting in 9.20%. No serious adverse events leading to a change in treatment were reported in our study. This may be explained by the therapeutic regimen most commonly used in our study. Dolutegravir-based regimens are better tolerated than other first-line treatment regimens [21] [22]. However, dolutegravir and other integrase inhibitors are associated with greater weight gain in individuals receiving antiretroviral therapy [23] [24]. Individuals experiencing significant weight gain while on dolutegravir-based antiretroviral therapy should be screened for metabolic syndrome and treated accordingly. This weight gain should be managed through lifestyle modifications and other appropriate interventions [23]. We used three separate methods to measure treatment adherence: prescription refill compliance, adherence to the prescribed regimen, and the pill count method, which served as our reference standard. The latter revealed that approximately 10.00% of patients were non-adherent. Similar proportions were found in other studies, such as those by Liu *et al.* in China [17] (9.82%), Keou *et al.* in Cameroon [25] (8%), and Byabene *et al.* in Senegal [13] (10%). Higher figures were reported by Eribo *et al.* in Nigeria (17%), Guira *et al.* in Burkina Faso [26] (32.8%), and Been *et al.* among African immigrants in the Netherlands [27] (53.4%). This difference compared to our rate may be explained by variations in adherence assessment methods (remaining pills vs. self-reporting), as well as by our sampling approach, which focused exclusively on patients attending follow-up appointments. Forgetting (40.00%) and travel (25.00%) were the most frequently cited reasons. Forgetting and travel were the primary reasons cited, consistent with other studies [17] [25] [28]. Forgetting was one of the most common causes of treatment non-adherence. It can be attributed to several factors, often acting in combination. In our study, this could be explained by the fact that most of our patients (three-quarters) relied on mental reminders to take their medication, a practice that may lead to missed doses. The female predominance observed in our population (57.00%) also warrants consideration when analyzing treatment adherence. Women living with HIV may face specific constraints related to family responsibilities, domestic and

professional activities, and childcare, all of which can influence the regularity of medication intake [8]. Forgetting could also be influenced by age. Our cohort included a significant proportion of older individuals, the 40 - 59 age groups were the most represented, at 47.00%. In elderly patients, certain challenges such as memory or concentration issues, fatigue, and the concomitant use of other medications can affect the daily management of antiretroviral therapy and increase the likelihood of missed doses [29].

More broadly, patient-related factors include a high mental load (work, studies, stress, family issues), attention deficits, a lack of understanding regarding the treatment's importance, fatigue, or depression [30]. Other factors, particularly those related to the treatment itself, have been identified, such as long treatment duration and schedules that are restrictive or incompatible with daily life [8]. Organizational factors such as the absence of a daily routine and a lack of reminders (alarms, pill organizers, or support from a loved one)—have also been highlighted [8]. To reduce instances of missed doses, strategies should include simplifying treatment regimens; using tools like pill organizers, alarms, and mobile apps; providing clear and repeated patient education; involving family or loved ones; and tailoring dosing schedules to the patient's lifestyle [31]. Travel-related factors may include changes to daily routines leading to missed doses; jet lag causing confusion or delays in administration; prolonged travel without immediate access to medication; forgotten, lost, or stolen luggage; and underestimating the trip's duration (resulting in an insufficient supply of medication) [32]-[34]. Travel-related non-adherence may also stem from psychosocial factors, such as the fear of stigma (e.g., reluctance to take medication in public or in front of others), group travel or family stays encouraging excessive discretion, and travel-related fatigue (e.g., long drives or overnight flights) [35]. Studies conducted in East Africa have shown that certain forms of mobility and migration are associated with increased treatment non-adherence, particularly when travel leads to interruptions in follow-up care or a stay in an environment where one's serostatus is unknown [36].

A lack of financial resources (5.00%) and transportation difficulties (5.00%) were also causes of non-adherence within our study population. These issues can be linked to where our patients lived; indeed, 38.00% of patients came from outlying regions, and 42.50% resided in the Dakar suburbs. For these patients, the distance to the care facility could lead to increased travel costs. A study conducted in sub-Saharan Africa also reports that financial constraints specifically a lack of transportation pose a significant barrier to adherence to antiretroviral therapy [37]. Similarly, research in Uganda has shown that a lack of funds for travel to care centers can result in missed appointments and missed doses [38].

5. Strengths and Limitations

Our study has several strengths. It enabled us to assess the frequency of non-adherence and identify its main causes, particularly forgetfulness and travel. It also allowed us to propose practical measures tailored to the difficulties patients face

such as the use of alarms, telephone reminders, and pill organizers to prevent missed doses. However, the study has certain limitations, particularly regarding the methods used to assess treatment adherence. We relied on patient self-reporting, which could introduce biases (such as recall bias) likely to lead to an overestimation of adherence rates. Furthermore, biological methods such as measuring viral load or assaying protease inhibitor levels would have helped validate our questionnaire.

6. Conclusion

At the conclusion of our study conducted at the Infectious and Tropical Diseases Department of the CHNU de Fann among patients living with HIV, we observed generally satisfactory adherence to antiretroviral therapy. The majority of patients adhered to prescription renewal schedules and took their medication as prescribed; however, a small proportion remained non-adherent. Forgetting to take medication and traveling were the most frequently cited reasons. These results highlight the need to strengthen personalized approaches aimed at improving therapeutic adherence.

Author Contributions

Conceptualization, Mouhamadou THIAM., Aboubakar Sidikh Badiane., and Mouhamadou Baïla Diallo.; **methodology**, Mouhamadou THIAM.; **software**, Mouhamadou THIAM., Aboubakar Sidikh Badiane.; **validation**, Moussa Seydi., Mouhamadou Baïla Diallo., Judicaël Malick Tine.; **formal analysis**, Aboubakar Sidikh Badiane.; **investigation**, Mouhamadou THIAM Abdou Faye., Mame Diarra Diouf., Nogaye Diouf., Maguette Sene., Ndella Dieye., Amath Faye., Aby Sow.; **data curation**, Mouhamadou THIAM.; Aboubakar Sidikh Badiane., **writing—original draft preparation**, Mouhamadou THIAM.; **writing—review and editing**, Mouhamadou THIAM., Aboubakar Sidikh Badiane.; Mouhamadou Baïla Diallo., Abdou Faye., Harouna Ousmane Sow.; Mouhamadou Moustapha Gueye.; Daouda Thioub.; **supervision**, Moussa seydi., Aboubakar Sidikh Badiane. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Cohen, M.S., Shaw, G.M., McMichael, A.J. and Haynes, B.F. (2011) Acute HIV-1 Infection. *New England Journal of Medicine*, **364**, 1943-1954. <https://doi.org/10.1056/nejmra1011874>
- [2] Moir, S., Chun, T. and Fauci, A.S. (2011) Pathogenic Mechanisms of HIV Disease. *Annual Review of Pathology: Mechanisms of Disease*, **6**, 223-248. <https://doi.org/10.1146/annurev-pathol-011110-130254>
- [3] Barré-Sinoussi, F., Ross, A.L. and Delfraissy, J. (2013) Past, Present and Future: 30

- Years of HIV Research. *Nature Reviews Microbiology*, **11**, 877-883.
<https://doi.org/10.1038/nrmicro3132>
- [4] World Health Organization (2025) HIV and AIDS. World Health Organization.
<https://www.who.int/news-room/fact-sheets/detail/hiv-aids>
 - [5] Gona, P.N., Gona, C.M., Ballout, S., Rao, S.R., Kimokoti, R., Mapoma, C.C., *et al.* (2020) Burden and Changes in HIV/AIDS Morbidity and Mortality in Southern Africa Development Community Countries, 1990-2017. *BMC Public Health*, **20**, Article No. 867. <https://doi.org/10.1186/s12889-020-08988-9>
 - [6] UNAIDS (2025) 2025 Global AIDS Update—AIDS, Crisis and the Power to Transform.
<https://www.unaids.org/en/resources/documents/2025/2025-global-aids-update>
 - [7] Izizag, B.B., Situakibanza, H., Kiazayawoko, F., Nkodila, A., Mafuta, E., Lukanu, P., *et al.* (2020) Déterminants de la non-observance au traitement antirétroviral chez l'adulte à Kinshasa. *Pan African Medical Journal*, **37**, Article 157.
<https://doi.org/10.11604/pamj.2020.37.157.13261>
 - [8] Mills, E.J., Nachega, J.B., Bangsberg, D.R., Singh, S., Rachlis, B., Wu, P., *et al.* (2006) Adherence to HAART: A Systematic Review of Developed and Developing Nation Patient-Reported Barriers and Facilitators. *PLOS Medicine*, **3**, e438.
<https://doi.org/10.1371/journal.pmed.0030438>
 - [9] Almeida, P.R.S., Rafael, C.A.C., Pimentel, V., Abecasis, A.B., Sebastião, C.S. and de Moraes, J. (2024) Adherence to Antiretroviral Therapy (ART) among HIV-1 Patients from Sub-Saharan Africa: A Systematic Review. *AIDS Reviews*, **26**, 102-110.
<https://doi.org/10.20944/preprints202404.1615.v2>
 - [10] Ridgeway, K., Dulli, L.S., Murray, K.R., Silverstein, H., Dal Santo, L., Olsen, P., *et al.* (2018) Interventions to Improve Antiretroviral Therapy Adherence among Adolescents in Low- and Middle-Income Countries: A Systematic Review of the Literature. *PLOS ONE*, **13**, e0189770. <https://doi.org/10.1371/journal.pone.0189770>
 - [11] Desclaux, A., Ciss, M., Taverne, B., Sow, P.S., Egrot, M., Faye, M.A., *et al.* (2003) Access to Antiretroviral Drugs and AIDS Management in Senegal. *AIDS*, **17**, S95-S101.
<https://doi.org/10.1097/00002030-200317003-00013>
 - [12] WHO (2023) Biennial Report 2022-2023: Strengthening Health System Resilience and Country-Level Impact. World Health Organization, 1-80.
<https://www.afro.who.int/fr/countries/senegal/publication/rapport-biennal-2022-2023-renforcement-de-la-resilience-du-systeme-de-sante-et-de-limpact-au-niveau>
 - [13] Byabene, A.K., Fortes-Déguénonvo, L., Niang, K., Manga, M.N., Bulabula, A.N.H., Nachega, J.B., *et al.* (2017) Optimal Antiretroviral Therapy Adherence as Evaluated by CASE Index Score Tool Is Associated with Virological Suppression in HIV-Infected Adults in Dakar, Senegal. *Tropical Medicine & International Health*, **22**, 776-782. <https://doi.org/10.1111/tmi.12882>
 - [14] Mbengue, M.A.S., Sarr, S.O., Diop, A., Ndour, C.T., Ndiaye, B. and Mboup, S. (2019) Prevalence and Determinants of Adherence to Antiretroviral Treatment among HIV Patients on First-Line Regimen: A Cross-Sectional Study in Dakar, Senegal. *Pan African Medical Journal*, **33**, Article 95.
<https://doi.org/10.11604/pamj.2019.33.95.17248>
 - [15] Loosli, T., Bolton Moore, C., Buzaalirwa, L., Byakwaga, H., Çelikağ, İ., Chimbetete, C., *et al.* (2025) Drug Resistance in People with Viremia on Dolutegravir-Based Antiretroviral Therapy in Sub-Saharan Africa: The DTG RESIST Study. *Clinical Infectious Diseases*, **81**, e128-e131. <https://doi.org/10.1093/cid/ciaf204>
 - [16] Dorward, J., Lessells, R., Drain, P.K., Naidoo, K., de Oliveira, T., Pillay, Y., *et al.* (2018)

- Dolutegravir for First-Line Antiretroviral Therapy in Low-Income and Middle-Income Countries: Uncertainties and Opportunities for Implementation and Research. *The Lancet HIV*, **5**, e400-e404. [https://doi.org/10.1016/s2352-3018\(18\)30093-6](https://doi.org/10.1016/s2352-3018(18)30093-6)
- [17] Liu, J., Yan, Y., Li, Y., Lin, K., Xie, Y., Tan, Z., *et al.* (2024) Factors Associated with Antiretroviral Treatment Adherence among People Living with HIV in Guangdong Province, China: A Cross Sectional Analysis. *BMC Public Health*, **24**, Article No. 1358. <https://doi.org/10.1186/s12889-024-18774-6>
- [18] Abdulrahman, S.A., Rampal, L., Ibrahim, F., Radhakrishnan, A.P., Kadir Shahar, H. and Othman, N. (2017) Mobile Phone Reminders and Peer Counseling Improve Adherence and Treatment Outcomes of Patients on ART in Malaysia: A Randomized Clinical Trial. *PLOS ONE*, **12**, e0177698. <https://doi.org/10.1371/journal.pone.0177698>
- [19] Maduka, O. and Tobin-West, C. (2013) Adherence Counseling and Reminder Text Messages Improve Uptake of Antiretroviral Therapy in a Tertiary Hospital in Nigeria. *Nigerian Journal of Clinical Practice*, **16**, 302-308. <https://doi.org/10.4103/1119-3077.113451>
- [20] Mills, E.J., Nachega, J.B., Buchan, I., Orbinski, J., Attaran, A., Singh, S., *et al.* (2006) Adherence to Antiretroviral Therapy in Sub-Saharan Africa and North America: A Meta-Analysis. *JAMA*, **296**, 679-690. <https://doi.org/10.1001/jama.296.6.679>
- [21] Kumarasamy, N., Prabhu, S., Chandrasekaran, E., Poongulali, S., Pradeep, A., Chitra, D., *et al.* (2019) Safety, Tolerability, and Efficacy of Generic Dolutegravir-Containing Antiretroviral Therapy Regimens among South Indian Human Immunodeficiency Virus-Infected Patients. *Clinical Infectious Diseases*, **68**, 1048-1051. <https://doi.org/10.1093/cid/ciy763>
- [22] Borghetti, A., Lombardi, F., Gagliardini, R., Baldin, G., Ciccullo, A., Moschese, D., *et al.* (2019) Efficacy and Tolerability of Lamivudine Plus Dolutegravir Compared with Lamivudine Plus Boosted PIS in HIV-1 Positive Individuals with Virologic Suppression: A Retrospective Study from the Clinical Practice. *BMC Infectious Diseases*, **19**, Article No. 59. <https://doi.org/10.1186/s12879-018-3666-8>
- [23] Maartens, G., Sinxadi, P. and Venter, W.D.F. (2023) Weight Gain on Dolutegravir: Association Is Not the Same as Causation. *Southern African Journal of HIV Medicine*, **24**, Article No. 1500. <https://doi.org/10.4102/sajhivmed.v24i1.1500>
- [24] Jemal, M. (2024) A Review of Dolutegravir-Associated Weight Gain and Secondary Metabolic Comorbidities. *SAGE Open Medicine*, **12**, 1-9.
- [25] Mbopi-Kéou, F., Djomassi, L.D. and Monebenimp, F. (2012) Etude des facteurs liés à l'observance au traitement antirétroviral chez les patients suivis à l'Unité de Prise En Charge du VIH/SIDA de l'Hôpital de District de Dschang, Cameroun. *Pan African Medical Journal*, **12**, Article 55. <https://doi.org/10.11604/pamj.2012.12.55.1521>
- [26] Guira, O., Kaboré, D.S., Dao, G., Zagré, N., Zohoncon, T.M., Pietra, V. and Simporté, J. (2016) Prevalence of Non-Adherence to Highly Active Antiretroviral Therapy and Its Related Clinical and Therapeutic Factors in Ouagadougou (Burkina Faso). *Médecine et Santé Tropicales*, **26**, 396-401. <https://doi.org/10.1684/mst.2016.0604>
- [27] Been, S.K., van de Vijver, D.A.M.C., Nieuwkerk, P.T., Brito, I., Stutterheim, S.E., Bos, A.E.R., *et al.* (2016) Risk Factors for Non-Adherence to Cart in Immigrants with HIV Living in the Netherlands: Results from the Rotterdam Adherence (ROAD) Project. *PLOS ONE*, **11**, e0162800. <https://doi.org/10.1371/journal.pone.0162800>
- [28] Eribo, E.V. and Adeleye, O.A. (2020) Self-Reported Adherence to Highly Active Antiretroviral Therapy in a Tertiary Hospital in Nigeria. *Ghana Medical Journal*, **54**, 30-35. <https://doi.org/10.4314/gmj.v54i1.5>

- [29] Ettenhofer, M.L., Hinkin, C.H., Castellon, S.A., Durvasula, R., Ullman, J., Lam, M., *et al.* (2009) Aging, Neurocognition, and Medication Adherence in HIV Infection. *The American Journal of Geriatric Psychiatry*, **17**, 281-290. <https://doi.org/10.1097/jgp.0b013e31819431bd>
- [30] Gonzalez, J.S., Batchelder, A.W., Psaros, C. and Safren, S.A. (2011) Depression and HIV/AIDS Treatment Nonadherence: A Review and Meta-Analysis. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, **58**, 181-187. <https://doi.org/10.1097/qai.0b013e31822d490a>
- [31] Horvath, T., Azman, H., Kennedy, G.E. and Rutherford, G.W. (2012) Mobile Phone Text Messaging for Promoting Adherence to Antiretroviral Therapy in Patients with HIV Infection. *Cochrane Database of Systematic Reviews*, No. 3, CD009756. <https://doi.org/10.1002/14651858.cd009756>
- [32] Taylor, B.S., Reyes, E., Levine, E.A., Khan, S.Z., Garduño, L.S., Donastorg, Y., *et al.* (2014) Patterns of Geographic Mobility Predict Barriers to Engagement in HIV Care and Antiretroviral Treatment Adherence. *AIDS Patient Care STDs*, **28**, 284-295. <https://doi.org/10.1089/apc.2014.0028>
- [33] Laws, M.B., Wilson, I.B., Bowser, D.M. and Kerr, S.E. (2000) Taking Antiretroviral Therapy for HIV Infection: Learning from Patients' Stories. *Journal of General Internal Medicine*, **15**, 848-858. <https://doi.org/10.1046/j.1525-1497.2000.90732.x>
- [34] Hill, Z., Kendall, C. and Fernandez, M. (2003) Patterns of Adherence to Antiretrovirals: Why Adherence Has No Simple Measure. *AIDS Patient Care and STDs*, **17**, 519-525. <https://doi.org/10.1089/108729103322494311>
- [35] Ware, N.C., Wyatt, M.A., Geng, E.H., Kaaya, S.F., Agbaji, O.O., Muyindike, W.R., *et al.* (2013) Toward an Understanding of Disengagement from HIV Treatment and Care in Sub-Saharan Africa: A Qualitative Study. *PLOS Medicine*, **10**, e1001369. <https://doi.org/10.1371/journal.pmed.1001369>
- [36] Murnane, P.M., Gandhi, M., Bacchetti, P., Getahun, M., Gutin, S.A., Okochi, H., *et al.* (2022) Distinct Forms of Migration and Mobility Are Differentially Associated with HIV Treatment Adherence. *AIDS*, **36**, 1021-1030. <https://doi.org/10.1097/qad.0000000000003213>
- [37] Heestermaans, T., Browne, J.L., Aitken, S.C., Vervoort, S.C. and Klipstein-Grobusch, K. (2016) Determinants of Adherence to Antiretroviral Therapy among HIV-Positive Adults in Sub-Saharan Africa: A Systematic Review. *BMJ Global Health*, **1**, e000125. <https://doi.org/10.1136/bmjgh-2016-000125>
- [38] Tuller, D.M., Bangsberg, D.R., Senkungu, J., Ware, N.C., Emenyonu, N. and Weiser, S.D. (2010) Transportation Costs Impede Sustained Adherence and Access to HAART in a Clinic Population in Southwestern Uganda: A Qualitative Study. *AIDS and Behavior*, **14**, 778-784. <https://doi.org/10.1007/s10461-009-9533-2>