Factors Promoting Retention of HIV/AIDS Clients with Suspected Treatment Failure at Kakamega County

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Abstract

Background: HIV-related retention is a significant issue that impedes the best treatment outcomes for clients with suspected treatment failure (STF). This study examined how the retention of HIV/AIDS clients in STF is promoted in Kakamega County, Kenya.

Methods: This study employed a quasi-experimental design that combined qualitative and quantitative research. Four sub-counties were used to recruit 513 participants (270 in the treatment and 243 in the control groups) on treatment failure rate.

Results: The main indices of treatment success were viral load suppression, increased CD4 lymphocyte counts, clinic attendance, and decreased missed pills and opportunistic infections. Monetary and social rewards were also very effective in increasing retention in care and clinical outcomes in the short run.

Conclusion: Evidence indicates that medical care with context-specific incentives and digital technologies can help to boost HIV patients at risk of treatment failure to a large extent.

Keywords: HIV/AIDS retention, suspected treatment failure, viral load, CD4 count, patient adherence

Introduction

Even after decades of investment in HIV treatment globally, retention in care is still a big issue, particularly among individuals suspected of treatment failure (STF). In Kenya, the HIV burden is high, with an estimated 1.4 million people living with HIV (PLHIV) and nearly 38,000 new infections every year (NACC, 2022). HIV care retention is crucial for long-term viral control, improved quality of life, and reduced transmission. Nonetheless, patients who experience treatment failure, whether virologic, immunologic, or clinical, tend to withdraw from the treatment process, default on therapy, and develop drug resistance, which results in poor health outcomes and health risks to the population (WHO, 2016).

Treatment failure is a serious issue since it usually occurs in phases; the first stage is virologic failure (inability to control the

viral load), the next stage is immunologic failure (reduction in CD4 counts), and the final phase is clinical failure, which is manifested by opportunistic infections and deteriorating health (MOH, 2018). These phases are usually interrelated with structural and individual obstacles, such as poverty, stigma, an insufficient follow-up framework, side effects of antiretrovirals (ARVs), and inappropriate provider-patient relationships (Mugavero et al., 2012).

Kakamega County, which occupies the western part of Kenya, has a large population of PLHIV, and statistics indicate a 77.7% retention rate over 12 months in 2020 (AMPATH, 2020). This number is below both national and global targets for HIV treatment, where at least 90% of people in care should be retained according to the UNAIDS 95-95-95 strategy. Moreover, statistics from Kakamega show that more patients are failing to receive treatment, and in 2020, 1,134 cases in this county of 12 sub-counties increased (AMPATH, 2020). This highlights the pressing need for interventions that extend beyond conventional clinical services and address the social, economic, and behavioral factors affecting patient retention.

Recent data indicate that patient-centered practices, including the delivery of specific support, financial incentives, community-building activities, and electronic monitoring systems, can enhance adherence and retention, particularly among high-risk cohorts, such as those with suspected treatment failure (UNICEF, 2014; PEPFAR, 2021). Additionally, knowledge of what positively affects retention, even among those who have a problem with treatment response, is crucial for informing policies and programs to reduce the number of people leaving institutions and enhance outcomes.

Although some studies have investigated the causes of poor retention or ART defaulting, few have focused on STF patients and the interventions or contextual factors that can help them stay in care (Shah et al., 2022). This study therefore aimed to explore the factors that facilitate retention among HIV/AIDS clients with a suspected loss of treatment in Kakamega County, with a view to informing focused and evidence-based interventions that may be scaled up in the same environment in Kenya and sub-Saharan Africa.

Methodology

Research Design

This study adopted a quasi-experimental research design grounded in a mixed-methods approach, integrating qualitative and quantitative methods, with qualitative inquiry serving as the dominant strand. This design was selected due to ethical and practical limitations that made random assignment of participants infeasible, particularly in the context of HIV treatment failure (Brenner et al., 2014). The quasi-experimental approach enabled meaningful comparison between intervention and control groups while accounting for contextual and baseline differences, thereby supporting causal

inference in real-world healthcare settings (UNICEF, 2014).

The intervention focused on the introduction of patient rewards aimed at improving treatment adherence, retention in care, and clinical outcomes. Quantitative measures assessed changes in clinical and behavioral indicators, while qualitative methods provided contextual explanations for observed outcomes. The integration of both methods strengthened internal validity and produced a comprehensive understanding of how and why the intervention influenced treatment outcomes (Miller et al., 2020).

Research Setting

The study was conducted in Kakamega County, Kenya, an area characterized by both rural and urban populations and a documented burden of HIV treatment failure. Four sub-counties namely, Lurambi, Shinyalu, Matungu, and Likuyani; were purposively selected based on high numbers of suspected treatment failures, rural–urban representation, and minimal risk of contamination between intervention and control sites. Lurambi and Shinyalu served as the intervention sites, while Matungu and Likuyani were designated as control sites. The setting provided an appropriate context for examining the effectiveness of incentive-based interventions within routine HIV care systems.

Sampling

Sampling was informed by a 77.7% retention rate in Kakamega County reported in 2020 and an estimated 1,134 cases of treatment failure (AMPATH, 2020). Using a 95% confidence level, a sample size of 287 participants was calculated using the Fisher formula. However, to enhance statistical power and accommodate sub-county-level comparisons, a total of 513 participants were sampled, comprising 270 participants in the treatment group and 243 in the control group.

Eligibility criteria included adults aged 18 years and above with suspected treatment failure manifested through defaulting, withdrawal, or loss to follow-up. Exclusion criteria comprised children under 18 years, children still receiving care at 12 months, formally transferred patients still in care, deceased defaulters, pregnant women, and patients with severe comorbid conditions.

Instrument

Quantitative data were collected using structured clinical data abstraction tools designed to capture standardized indicators such as viral load suppression, medication adherence, and clinic attendance from patient records and follow-up assessments.

Qualitative data were gathered using semi-structured interview guides for in-depth interviews (IDIs) and focus group discussion (FGD) guides tailored to elicit participants' experiences, perceptions, and contextual factors influencing adherence and retention in care (Lim, 2024). Separate guides were developed for patients and healthcare providers to capture both demand-side and supply-side perspectives.

Data Collection

Data collection occurred in three phases: baseline assessment, a three-month intervention period, and a three-month post-intervention follow-up. During the intervention phase, a sociologist assessed behavioral and treatment outcomes among the 270 participants in the intervention group. Participants who demonstrated improved adherence and retention received individualized cash-based rewards aimed at enhancing access to care, economic self-sufficiency, and sustained compliance. The control group continued to receive standard HIV care.

Qualitative data were collected concurrently through FGDs and IDIs with patients and healthcare providers. FGDs explored lived experiences related to transportation costs, stigma, economic pressures, and social support systems. At the same time, IDIs with healthcare providers examined structural health system constraints such as staffing shortages, workload, and limited resources (Rana & Chimoriya, 2025).

Data Analysis

Quantitative data were analyzed using statistical comparison techniques to examine differences in clinical and behavioral outcomes between the intervention and control groups. Patient records and follow-up data were systematically analyzed to estimate the effect of the reward intervention on measurable indicators of treatment success (Okwuise & Ndudi, 2023). Qualitative data from FGDs and IDIs were analyzed thematically to identify recurring patterns related to behavioral, socio-economic, and structural factors influencing treatment adherence and retention. Findings from the qualitative analysis were used to triangulate quantitative results, thereby enriching interpretation and explaining observed trends (Rana & Chimoriya, 2025). This integrative analysis enhanced the robustness of the findings and ensured a nuanced understanding of the intervention's effectiveness within its real-world context (Miller et al., 2020).

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Review Committee (IERC) of Masinde Muliro University of Science and Technology (MMUST), the National Commission for Science, Technology and Innovation (NACOSTI), and the Ministry of Health in Kakamega County. All participants were adequately informed about the purpose of the study, procedures involved, and their rights, including voluntary participation, anonymity, and the right to withdraw at any stage without any consequences. Written informed consent was obtained prior to participation, and the ethical principles of autonomy, beneficence, non-maleficence, justice, and confidentiality were strictly observed throughout the research process.

To safeguard confidentiality and privacy, unique identification codes were assigned to all participants, and both physical and electronic data were securely stored with restricted access. Community sensitivity was maintained through respectful engagement, adherence to cultural and

religious values, and targeted health education to minimize stigma associated with HIV. Additional safeguards included ethical tracing procedures, protection of vulnerable participants, and strict observance of COVID-19 infection prevention protocols, including the use of personal protective equipment and adherence to public health guidelines during data collection.

Findings

The study revealed that there were several important variables among which there was a significant contribution towards retention of HIV/AIDS clients with proven treatment failure in Kakamega County. The greatest of these was the adoption of patient-centered care practices.

> *"Before, I feared the clinic because I thought they would blame me for missing appointments. But now the providers are supportive; they understand my challenges." Respondent M.*

Another enabler was flexible clinic hours, as this allowed clients to complete their appointments without disrupting their work and family matters.

> *"Sometimes mornings are tough because of work, so the flexible schedule makes it possible to attend my appointments without missing income." Respondent N.*

In addition to clinical support, this research also focused on the value of specific socioeconomic interventions. Financial incentives, transport facilitation, and relations to ancillary services, nutrition programs, psychosocial support groups, and income-generating programs were also found to make a significant difference in the motivation of clients to remain in care.

> *"Transport was my biggest challenge. When they helped with fare, I stopped missing appointments. It removed a huge burden." Respondent O.*

> *"The nutrition support motivated me a lot. When you are sick and struggling to eat well, getting those supplements makes you want to stay in the program." Respondent P.*

Another important retention factor was case management, which involved personal and constant follow-up. Healthcare professional teams that made home visits to clients, conducted regular follow-ups, or made phone calls were critical in ensuring that clients remained engaged despite missing appointments.

> *"What helped me stay in care was the way the case managers kept checking on me. They didn't give up; even when I missed an appointment, they would call or come home to see how I was doing." Respondent Q*

In addition, peer support networks and community-based activities made significant contributions to increasing the continuity of treatment. Peer educators

and support groups also gave the client a sense of belonging and understanding, which encouraged the client to keep up with the treatment despite the stigma and emotional burden of failure to take the treatment.

> *"Talking to peers who had gone through the same challenges made it easier for me to accept my situation and commit to the clinic visits." Respondent R.*

Lastly, the availability and visibility of treatment literacy programs also helped with retention. Clients were more empowered and confident in their ability to overcome challenges during the treatment process when they were informed about the aims of enhanced adherence counseling, viral load monitoring, and second-line treatment options. The improved knowledge reduced anxiety and raised the willingness of the clients to proceed with their participation in the care, even when the treatment failure was suspected and/or established.

> *"Knowing that there were second-line treatment options made me feel hopeful. I realized treatment failure was not the end." Respondent S.*

The study also identified reasons for patients stopping treatment, which were categorized by control and treatment groups, as illustrated in *Table 1*

Table 1

Cross Tabulation for Reasons for Stopping Treatment

Reasons for Stopping Treatment	Control Group Frequency	Control Group (%)	Treatment Group Frequency	Treatment Group (%)
Drug out of stock	21	8.7	62	23.1
Patient decision	10	4.3	21	7.7
Patient lack of finance	32	13.0	21	7.7
Severe side effects	180	74.0	21	7.7
Pregnancy	0	0	62	23.1
Virologic failure	0	0	83	30.8
Total	**243**	**100**	**270**	**100.1**

Source: Field data, 2024

Discussions

Given the situation with suspected treatment failure patients in Kakamega County, it is crucial to identify and strengthen the reasons that promote retention in HIV/AIDS care. Practice and literature show that in resource-limited environments, such as Kenya, several interrelated fields play a significant role in patient retention and continuity of care (Nesengani et al., 2025).

A properly functioning healthcare system is key to maintaining patient engagement. This involves the regular supply of antiretroviral therapy (ART), enhancement of laboratory infrastructure to conduct viral load tests as required, and a decrease in waiting time at health centers. Patients become more loyal to their treatment process when they feel safe and satisfied with the quality of the services delivered and effective follow-up.

Reliability and interaction between patients and medical practitioners are important factors for retention. Patient-centered counselling, patient confidentiality, and cultural sensitivity help patients feel appreciated and understood. Such supportive interactions encourage people to continue visiting clinics, particularly when they encounter issues such as stigma, treatment fatigue, or side effects (Kwame & Petrucka, 2021).

According to Moomba and Van Wyk (2019), patients are likely to miss regular appointments due to socioeconomic factors such as poverty, long commutes, and food insecurity. Community-based interventions, such as the provision of transport vouchers, referrals to nutrition services, and decentralization of ART services, can be used to reduce these barriers. Community health volunteers (CHVs) may also be used to bolster the power of community health systems, in which case patients receive follow-up and support at home.

Peer support groups, community ART groups, and psychosocial counselling are employed to reinforce and retain adherence because of the emotional and social support of the program. These platforms enable patients to exchange experiences, acquire effective coping strategies, and reduce feelings of isolation associated with living with HIV (Okonji et al., 2020). Support is particularly necessary for individuals whose treatment response appears at risk of failure, as it will help them rebuild their confidence and inspire them to resume care.

Providing accurate information about treatment expectations, side effects, and the necessity of viral suppression empowers patients to make informed health choices. Patients can be provided with ongoing treatment literacy education, delivered either in the clinic or through community outreach, to understand what missing doses mean and why they need to follow up on their treatment, particularly when they face treatment challenges (Gill et al., 2022).

Electronic medical records, early warning systems, and SMS reminders are digital solutions that help clinics monitor missed appointments and provide timely reminders to patients. Examples of places where incorporating low-cost mobile health solutions can be useful include Kakamega County, where loss to follow-up is high, and patients with suspected treatment failure must be identified, reviewed, and returned to care as quickly as possible (Ochieng et al., 2024).

Family support, caregivers, and the whole community help improve adherence and stability. Disclosure and counselling sessions in safe surroundings, along with family involvement, strengthen the support network for the patient. Good social support usually results in higher levels of appointment-keeping and retention in care.

Patient-Centered Care and Strong Provider-Patient Relationships

Tailored Adherence Counseling

The research established that generic counseling techniques typically do not

account for the particular realities that individual patients regularly encounter. Therefore, one-to-one adherence counseling should be based on identifying individual obstacles among patients, such as lifestyle, medication side effects, or mental health-related factors. By recognizing these issues, healthcare providers can offer personalized solutions that make treatment more manageable and sustainable.

This strategy involves providing practical tips, such as how to store medications properly, how to take them with food, and how to manage side effects effectively. It also entails regular follow-up and motivational support to help patients manage their treatment (Stewart et al., 2022). Individual counseling then changes a regular teaching session into a joint problem-solving and supportive session.

Reduced Wait Times and Flexible Clinic Hours

Another reason that deters patients from attending appointments was also determined to be long wait time and strict clinic timetables, particularly those who have work or school and family commitments. Having too much time at a clinic could stand a high chance of frustration and ultimately losing care by the patients. The research indicates that shortening the waiting period is a sign of respect for patients' time and can significantly enhance their experience with the healthcare system. This aspect should be considered.

Scheduling flexibility, i.e., including evening or weekend session proposals for patients with complex schedules, may also play a critical role in enhancing treatment retention (Anastasi et al., 2024). For working patients or those with caregiving responsibilities, these approaches are what they need in terms of convenience. In addition, retention can be reinforced through simplified procedures, appointment alerts, and effective service delivery, ensuring that healthcare access aligns with patients' daily realities and demands.

Empathetic and Non-Judgmental Healthcare Providers

The research found that patients are more likely to remain in care when they feel respected, understood, and supported by their medical team. This implies that a compassionate attitude can foster trust and reduce the fear of being judged, which, in most cases, keeps many people out of care or leaves them out of it. Healthcare professionals who listen, are compassionate, and treat patients as partners in their health journey foster an environment where patients feel valued and safe and consequently devote themselves to the treatment process.

Another important component is training healthcare workers in effective communication and stigma reduction. Patients will be more willing and franker about their problems once their healthcare providers are prepared to discuss sensitive matters in a kind, culturally sensitive manner (Mata et al., 2021). This trust not only enhances compliance but also

fosters long-term relationships in which the person remains committed to care-seeking.

Socio-Economic Support and Reduced Financial Burden

Financial Incentives

The researchers suggest applying direct financial incentives, such as gift cards, transport vouchers, or small cash transfers, to alleviate the economic strains that commonly limit regular access to care. Such incentives can offset some of the usual expenses incurred by patients, such as transport, food insecurity, or lost wages, by encouraging patients to take the time to seek treatment. Findings from other such interventions, such as research in Kenya, also support the idea that financial incentives play a role in increasing clinic attendance and viral suppression, as no patient would be tempted to sacrifice their health to achieve life priorities while obtaining essential provisions. This strategy was considered highly applicable, as the number of uninsured people in the target population is quite high, and many of them find it difficult to cover basic care-related costs.

Ancillary Services

In addition to direct funding, ancillary services are relevant for enhancing retention in care. Childcare, emergency financial assistance, housing support, and access to nutrition programs are among the services that help overcome the practical barriers that often contribute to failure to attend an appointment or to break treatment. Through these daily struggles, patients are better positioned to be active in their treatment programs.

Integrated Services

Convenience and accessibility could be further improved by integrating HIV care with other crucial health services. Patients will be able to meet many of their health needs when services such as family planning, TB screening, mental health counseling, and chronic disease management are available under a single roof. The practice of this co-location model saves resources and time, as patients do not have to relocate to multiple facilities to receive holistic care.

Holistic Approach to Retention and Adherence

Ancillary support services and integrated care, combined with financial incentives, form a holistic model that removes structural and individual barriers to treatment. The multi-layered approach is evident in the fact that compliance cannot be attributed solely to clinical factors; it is driven by economic, social, and logistical factors. These complex needs will be addressed by the intervention, which will create an enabling environment that will help patients develop the capacity to participate in care in the long term**.**

Implications for Scaling and Sustainability

The use of these combined approaches not only improves patient-level performance but also offers an example that can be modified to fit the conditions of similar low-resource settings. These interventions can increase system

efficiency, reduce missed appointments when coordinated appropriately, and contribute to higher levels of viral suppression at the population level if implemented. Therefore, this study highlights the opportunities for broader implications for the health system, especially where financial and structural constraints remain substantial obstacles to access.

Social Support and Community Engagement

Family and Treatment Supporters

One of the best approaches to improving adherence and retention in HIV care is to involve family members or identified treatment supporters. Emotional support, assistance with body activities, and soft reminders to attend clinics or take medications help patients become more consistent with their medication schedules. Investigations have demonstrated that supportive close contacts contribute significantly to treatment outcomes.

In addition to emotional support, treatment supporters can assist with observing side effects, transportation to appointments, and acting on behalf of the patient in case of challenges. Healthcare providers can reinforce the stability of treatment habits by including families in the treatment plan and providing them with simple education on HIV care and ART.

Peer Support Groups

Linking HIV-positive people to peer support groups will help provide a safe environment where they can learn together and mutually encourage each other. Patients enjoy listening to real-life stories, coping mechanisms, and testimonies from people who have experienced the same difficulties. The experience of this journey fosters a sense of belonging, reduces stigma, and builds confidence in treatment.

Peer support groups also provide a sense of empowerment through practical tips, including managing medication side effects, relationships, and disclosure. Peer navigators are additionally reinforced by their peer experience of HIV, which better equips clients with insight into the health system, ways of receiving services, and remaining active in care in the long term.

Community Health Workers (CHWs)

Community Health Workers are an essential link between communities and health facilities. Their intimate connection with local households enables them to identify struggling patients, offer psychosocial support in various ways, and track missed patient appointments.

CHWs might provide home-based education, timely treatment reminders, and assist patients in resolving barriers to care, such as transportation issues, stigma, and financial limitations. Since they understand the community's cultural dynamics and social structure, they are highly effective in fostering compliance and long-term retention in care.

Effective Tracking and Follow-up Mechanisms

Robust Patient Tracking Systems

In view of the current issues associated with outdated, non-integrated health information systems, as illustrated in the problem statement, the need to establish an up-to-date, integrated patient-tracking system is urgent and crucial. Such a system would monitor clinic visits, identify those who miss their visits early, and record vital clinical indicators such as viral load outcomes. With access to real-time information, healthcare professionals can contact patients promptly when they show signs of not being connected to care, thereby reducing the risk of a treatment gap**.**

Appointment Reminders and Digital Support Tools.

Even the simplest types of adherence-support interventions, such as SMS messages, automated voice calls, and WhatsApp messages and notifications, have proven effective in reducing missed visits in Kenya. As a result of the introduction of digital health-related interventions (i.e., mobile applications and patient portals), facilities will be able to provide participants with reminders, a peer support community, a two-way communication system, and easy access to credible health-related information. These are acceptable and implementable within Kenyan communities; hence, they could be a huge addition to the retention strategy**.**

Proactive Outreach for Missed Appointments

Follow-up should be performed promptly whenever the patient misses a follow-up appointment or when their treatment is no longer effective. CHWs and clinic staff play a pivotal role in respectful, non-judgmental outreach to discover the underlying issues, which could be economic, social, or clinical, and help the patient resume care. Such proactive steps will help build trust and ensure that minor hiccups do not lead to overall disengagement.

Strengthening Personal Motivation and Highlighting Health Benefits

Patients with tangible improvements in their physical condition once they start receiving ART tend to have a greater urge to continue care. When they are feeling better, they will no longer be afraid, will have more hope, and will strengthen their adherence. There is a need to educate the patients continuously through counselling sessions, support groups or even via digital means so that the patients are aware of the long-term advantages of ART including the suppression of the virus, prevention of opportunistic infections, the enhancement of the quality of life, and benefiting the patient to lead a productive and fulfilling life.

Enhancing Treatment Literacy and Patient Empowerment

Treatment literacy is comprehensive and enables patients to make healthy treatment choices. The side effects are demystified by clear explanations of

how ART works, what to expect during treatment, and how to manage side effects. Patients who are aware of their treatment process will gain confidence, attend clinics regularly, and be active in their treatment.

Integrating Social, Economic, and Community Support

The clinical issue of retention in care is not an exclusive social issue but is heavily influenced by social and economic factors. Enhancing community support, encouraging peer mentorship, and linking social protection initiatives can help alleviate transportation costs, stigmatization, and emotional burdens. This can be facilitated through community networks, where patients can receive encouragement and accountability, helping them cope with challenges that could lead to disengagement.

A Holistic Approach to Retention in Kakamega County

A complicated model is required beyond the simple dispensing of medicine to help with long-term retention in Kakamega County. Patient-centered healthcare must surmount clinical, psychological, and socioeconomic barriers and utilize technology, social structures, and lifelong education. Health facilities can develop a more positive care environment by using a combination of modern tracking, enhanced provider-patient interaction, and reinforcement of the personal gains of long-term compliance.

Alignment of the Proposed Reward System

The proposed reward system is a strategic complement to these promotional factors. The reward system facilitates behavioral and structural aspects of retention, including alleviating financial burdens, improving motivation, and encouraging patients to attend clinics regularly. This consonance makes it a viable intervention that improves ART adherence, patient engagement, and better health outcomes in Kakamega County.

Figure 1

Factors Promoting Retention of HIV/AIDS Clients with Suspected Treatment Failure

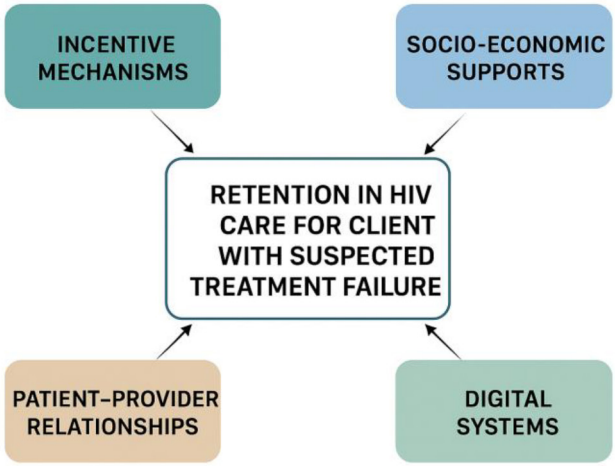
Source: AI-generated, 2025

Conceptual model on how incentives, socio-economic supports, patient-provider relationships, and digital systems interrelate

The study showed that long-term retention of HIV/AIDS clients with suspected treatment failure in Kakamega County is best achieved through a combination of patient-centered care, socioeconomic support, digital follow-up systems, and behavioral incentives. Compassionate and non-judgmental patient-provider relationships build trust and encourage clients to stay in care, while socioeconomic interventions, such as transport assistance, nutrition programs, and psychosocial support, remove structural barriers that commonly lead to missed appointments. Digital tracking and SMS reminders improve follow-up, and financial or social incentives boost motivation and clinic attendance, particularly in the short term. Peer support, treatment literacy, and proactive community outreach reinforce adherence. The study concludes that no single intervention is sufficient; instead, a holistic, integrated approach that combines clinical, economic, psychosocial, and technological strategies is essential to sustain retention and improve health outcomes for patients at risk of treatment failure, as illustrated in Figure 2.

Figure 2

Interrelationship among incentives, socio-economic supports, patient-provider relationships, and digital systems



Source: AI-generated, 2025

Conclusion

Overall, the study indicated that the maintenance of HIV/AIDS clients with possible treatment failure in Kakamega County is greatly reliant on a combination of various elements that involve patient-focused, socioeconomic, and community-based elements. The quality of client-provider exchange, particularly compassionate, non-judgmental, and encouraging communication, will lead to a long-term commitment to care and, in turn, improve compliance. Further socioeconomic interventions, such as financial assistance, transportation assistance, and contact with other supplementary services, also dilute the structural obstacles that are habitually used to obstruct continuity of treatment.

It was also found that proactive follow-up systems, individualized case management, and peer and community support systems played vital roles in enhancing clients' resilience and motivation to remain in care. However, more importantly, treatment literacy will also be enhanced, allowing clients to gain a deeper understanding of their clinical experience, which, in turn, will help them overcome the setbacks of suspected treatment failure.

In general, the study shows that there is no single intervention that motivates retention, but rather a well-rounded, client-focused intervention involving clinical, psychosocial, and economic factors. Such multidimensional strategies reinforced within the health system will

be vital in improving treatment outcomes, reducing the risk of developing illness, and improving the general reaction to HIV in Kakamega County and similar settings.

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Declaration of Interest

None

Disclosure of AI usage

The authors used ChatGPT to generate *Figure 1* and *Figure 2*. We also used ChatGPT to restructure the grammar in the methodology section. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the published work.

References

AMPATH. (2020). Annual Retention Report: Kakamega County HIV Program. Eldoret, Kenya: AMPATH.

Anastasi, J. K., Capili, B., Norton, M., McMahon, D. J., & Marder, K. (2024). Recruitment and retention of clinical trial participants: understanding motivations of patients with chronic pain and other populations. Frontiers in pain research (Lausanne, Switzerland), 4, 1330937. https://doi.org/10.3389/fpain.2023.1330937

Brenner, S., Muula, A.S., Robyn, P.J. (2014). Design of an impact evaluation using a mixed methods model – an explanatory assessment of the effects of results-based financing mechanisms on maternal healthcare services in Malawi. BMC Health Serv Res 14, 180. https://doi.org/10.1186/1472-6963-14-180

Gill, M.M., Ndimbii, J.N., Otieno-Masaba, R. (2022). Adherence challenges and opportunities for optimizing care through enhanced adherence counseling for adolescents with suspected HIV treatment failure in Kenya. BMC Health Serv Res 22, 962. https://doi.org/10.1186/s12913-022-08373-9

Kwame, A., & Petrucka, P. M. (2021). A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. BMC Nursing, 20(1), 158. https://doi.org/10.1186/s12912-021-00684-2

Lim, W. M. (2024). What is qualitative research? An overview and guidelines. Australasian Marketing Journal, 33(2), 199-229. https://doi.org/10.1177/14413582241264619

Mata, Á.N.S., de Azevedo, K.P.M., Braga, L.P. (2021). Training in communication skills for self-efficacy of health professionals: a systematic review. Hum Resour Health 19, 30. https://doi.org/10.1186/s12960-021-00574-3

Miller, C. J., Smith, S. N., & Pugatch, M. (2020). Experimental and quasi-experimental designs in implementation research. Psychiatry research, 283, 112452. https://doi.org/10.1016/j.psychres.2019.06.027

Ministry of Health (MOH), Kenya. (2018). Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya. Nairobi: NASCOP. https://cquin.icap.columbia.edu/wp-content/uploads/2017/04/ICAP_CQUIN_Kenya-ARV-Guidelines-2018-Final_20thAug2018.pdf

Moomba, K., & Van Wyk, B. (2019). Social and economic barriers to adherence among patients at Livingstone General Hospital in Zambia. *African journal of primary health care & family medicine*, *11*(1), e1–e6. https://doi.org/10.4102/phcfm.v11i1.1740

Mugavero, M. J., Amico, K. R., Westfall, A. O., Crane, H. M., Zinski, A., Willig, J. H., Dombrowski, J. C., Norton, W. E., Raper, J. L., Kitahata, M. M., & Saag, M. S. (2012). Early retention in HIV care and viral load suppression: implications for a test and treat approach to HIV prevention. *Journal of Acquired Immune Deficiency Syndromes (1999)*,*59*(1), 86–93. https://doi.org/10.1097/QAI.0b013e318236f7d2

National AIDS Control Council (NACC). (2022). Kenya HIV Estimates Report 2022. Nairobi, Kenya. https://nsdcc.go.ke/download-category/kenya-hiv-estimates-report/

Nesengani, T. V., Downing, C., & Ten Ham-Baloyi, W. (2025). Barriers to effective patient care as experienced by nurses in primary healthcare clinics in African countries: a systematic review of qualitative studies.*BMC Nursing*, *24*(1), 232. https://doi.org/10.1186/s12912-025-02877-5

Ochieng', S., Hariharan, N., & Abuya, T. (2024). Exploring the implementation of an SMS-based digital health tool on maternal and infant health in informal settlements. BMC Pregnancy Childbirth 24, 222. https://doi.org/10.1186/s12884-024-06373-7

Okonji, E. F., Mukumbang, F. C., Orth, Z., Vickerman-Delport, S. A., & Van Wyk, B. (2020). Psychosocial support interventions for improved adherence and retention in ART care for young people living with HIV (10-24 years): a scoping review. *BMC Public Health*, *20*(1), 1841. https://doi.org/10.1186/s12889-020-09717-y

Okwuise, Y., & Ndudi, F. (2023). Reward system and organizational performance. International Journal of Business Management & Research, 12(6), 20-31. https://doi.org/10.5281/zenodo.8108561

PEPFAR. (2021). Monitoring Retention and Adherence in HIV Care. www.pepfar.gov

Rana, K., & Chimoriya, R. (2025). A Guide to a Mixed-Methods Approach to Healthcare Research. Encyclopedia, 5(2), 51. https://doi.org/10.3390/encyclopedia5020051

Shah, G. H., Etheredge, G. D., Nkuta, L. M., Waterfield, K. C., Ikhile, O., Ditekemena, J., & Bernard, B. N. B. (2022). Factors associated with retention of HIV patients on antiretroviral therapy in care: evidence from outpatient clinics in two provinces of the Democratic Republic of the Congo (DRC). Tropical Medicine and Infectious

Disease, 7(9), 229. https://doi.org/10.3390/tropicalmed7090229

Stewart, S. J. F., Moon, Z., & Horne, R. (2022). Medication nonadherence: Health impact, prevalence, correlates and interventions. Psychology & Health, 38(6), 726–765. https://doi.org/10.1080/08870446.2022.2144923

UNICEF. (2014). Impact Evaluation in Practice. Washington, D.C.: World Bank Publications. https://documents1.worldbank.org/curated/en/823791468325239704/pdf/Impact-evaluation-in-practice.pdf

World Health Organization (WHO). (2016). Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection. Geneva: WHO. https://www.who.int/publications/i/item/9789241549684