

Perceived Patients' Satisfaction, Barriers and Implications on Engagement in Antiretroviral Treatment Services in Cameroon within the HIV Test and Treat Context

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Abstract Introduction: Patients' satisfaction has been associated with improved adherence, retention and antiretroviral treatment (ART) outcomes. Sustained engagement in ART is a prerequisite for attaining universal ART coverage. This study describes perceived patients' satisfaction, barriers and implications on engagement in ART services within the context of the HIV Test & Treat (HIV T&T) strategy. **Materials and methods:** Between August and September 2018, HIV positive clients who initiated ART and key HIV care providers (HCPs) in three HIV clinics in Cameroon were interviewed. Ethical and administrative clearances for the study were obtained from the appropriate quarters. A thematic approach was used to analyze the data. **Results:** A total of 45 HIV positive clients and 21 HCPs were interviewed. Patients' satisfaction varied with HIV service. Patient-reported barriers included: long waiting time, poor reception, delay between time of HIV diagnosis and ART initiation, poor coordination between HIV testing and ART services, poor flexibility in ART delivery system, large tablet size of ARVs/indefinite treatment duration, side effects. Inadequate counselling, overcrowding in the HIV clinics, patients' non-appreciation of ART benefits were reported by patients and HCPs. Some barriers were linked to the HIV T&T strategy and many of them limited patients' engagement in ART. **Conclusion:** Patient satisfaction varied with HIV service. Some of the barriers to patients' satisfaction were linked with the implementation of the HIV T&T strategy and negatively impacted patients' engagement in ART services. These views should be considered in evaluating and improving the quality of HIV care.

Keywords: patients' satisfaction, barriers, antiretroviral treatment, HIV test and treat strategy

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1. Introduction

Sustained engagement in antiretroviral treatment programs (ART) is indispensable for the attainment of the World Health Organization's recommended HIV T&T 90-90-90 targets [1-4]. Today, most HIV infected individuals receiving combination antiretroviral therapy can achieve an undetectable plasma HIV-RNA level [5,6]. Nevertheless, deficits in the spectrum of engagement in HIV care including suboptimal adherence to therapy and retention in care pose significant barriers to achieving optimal treatment outcomes [7,8].

With the increasing access to ART globally, health care systems, including health care workers face significant challenges in continuing the provision of ART to rapidly

growing numbers of patients [9]. A systematic review in 2007 indicated that in sub-Saharan Africa (SSA) only 60% of patients remained on ART up to 2 years after starting treatment, with loss to follow-up and death as the leading causes of patient attrition [10].

The World Health Organization (WHO) recommended two strategies to avert the high attrition rates, including: task shifting of HIV treatment, the decentralization of ART to primary health care (PHC) clinics and community ART adherence groups [11]. This when implemented could avert high attrition rate. Decentralization and task shifting have provided essential relief and assistance for health care providers and assisted in increasing access to ART for patients. However, high rates of patient attrition remain [12].

Several other system-related factors associated with low patient satisfaction have also been associated with lower

adherence to care, including, length and quality of the interaction with a physician and/or nurse, and shortages in HCP and medical supplies [13-16]. Health system responsiveness (HSR) measures quality of care based on patients' experiences within the health system. Significant associations have been found between adherence to antiretroviral therapy (ART) and follow-up among patients with HIV and the HSR domains of communication, dignity, promptness, and access to HIV care [13,17,18].

Taking into consideration patient views is thus increasingly considered to be a useful complement, and a necessary component of the evaluation of the quality of care [19,20]. Patient satisfaction is a construct related to several HSR domains, is a subjective measure of a patient's perceived needs and expectations for health system interactions, and how these relate to their actual experiences and perceptions of care received [18,21]. Satisfied patients are likely to be an indication of a successful HIV program with larger numbers of adherent patients [14].

General and specific objectives: This study aimed at describing perceived patients' satisfaction, barriers and implications on sustained engagement in ART services in three regional hospitals in Cameroon within the context of the HIV test & treat strategy. Specifically, the study aimed to: i) describe patients' satisfaction with HIV services, ii) identify barriers to patients' satisfaction, and iii) assess the implication of the barriers to patients' satisfaction on patients' engagement in ART services.

2. Materials and Methods

2.1. Study Design and Procedure

HIV positive clients on ART and clients lost to follow up (LTF) who initiated ART in three regional hospital's HIV clinics in Cameroon, following the implementation of the HIV T&T strategy in May 2016, were interviewed. Clients LTF were defined as not showing up at the clinic for drug refill for more than three consecutive months, and not showing up during the time of data collection.

The pre-tested interview guide was developed following formal and informal discussions with three patients on ART, three patients LTF, three HCPs and a thorough review of literature. Themes identified included: perceived patients' satisfaction with HIV care services, perceived patients' dissatisfaction with HIV services, perceived barriers to patients' satisfaction, and implications of these barriers on patients' engagement in care. Probes were included for each theme. In-depth interviews were conducted by six trained research assistants (two per site) through August to September 2018. Written informed consent was obtained from each participant and the interviews were audio recorded after obtaining their permission.

To understand HCP's perspective of patients satisfaction, and if some of the perceived barriers could be linked to the implementation of the HIV T&T strategy, we also interviewed HCPs in the three clinics who provided care to HIV positive clients before and after the implementation of the HIV T&T strategy. We prioritized physical interviews but many of the patients LTF and few HCPs who could not be reached physically were interviewed through phone

calls and verbal consent was obtained. The ethical clearance for this study was obtained from the University of Buea Institutional Review Board [22], while administrative clearances were obtained from the study hospitals.

2.2. Study Area

The Bamenda Regional Hospital (BRH) in the North West Region, the Limbe Regional Hospital (LRH) in the South West Region, and the Yaoundé Jamot Hospital (YJH) in the Centre Region were included in the study. All the sites have a specialized HIV treatment center and provide care to about 12,500 HIV positive clients; BRH (5000), LRH (4000) and YJH (3500). Each of these hospitals has a medical doctor in charge of the treatment center and other staff including nurses, pharmacy attendants, counselors and psychosocial workers.

2.3. Study Population and Sampling Method

A total of 66 participants (36 females and 30 males), constituting 45 HIV positive clients and 21 HCP were purposively selected for in-depth interview. For each site, we selected 10 ART active and 5 LTF HIV positive patients for interview. Of the 10 ART active patients, 5 were patients seen at their first or second visit and the other 5 were those who had been much longer in care. Including patients LTF allowed us to uncover information regarding barriers to retention in ART. Interviewing patients at first visit allowed to uncover any potential barriers for subsequent visits.

Seven (7) HCP were selected per clinic in the respective HIV care services and by virtue of their strategic role in HIV care delivery. We included; the clinic coordinator (medical doctor), the nurse in charge of the treatment center, two nurse counselors (including the head), two psychosocial workers, one pharmacy attendant. The age ranged between 24 – 55 years for the HIV positive participants and 30- 50 for the HCP.

2.4. Data Management and Analysis

The digitally recorded interviews were transcribed in verbatim. Field notes were converted into data documents. The transcripts were then read and re-read, during which notes and early impressions were made. The coding of data was guided by organizing the data under predefined themes. A deductive-inductive approach was used to assign data to predefined themes and to assign new themes. Using QDA Miner Lite, a thematic analysis was done to extract the pre-defined themes from the data documents and the in-depth interviews.

3. Results

The results of the study were classified under the following themes: patients' satisfaction with HIV care services and reasons; barriers to patients' satisfaction with HIV care services; impact of the HIV T&T strategy on patients' satisfaction, impact of barriers to patients' satisfaction on effective engagement in care.

3.1. Satisfaction with HIV Care Services and Reasons

More than half of the patients expressed satisfaction with the general care provided at enrollment, and the

extent of expressed satisfaction varied from site to site, with specific sites reporting relatively more satisfaction. Patients generally reported more satisfaction during their initial visits compared to subsequent ones. The drivers to patients' satisfaction are presented on [Table 1](#) below.

Table 1. Reasons for patient satisfaction with HIV care services

Theme	Sub theme	Representative quotes
Patients reasons for satisfaction with HIV care services	Good reception and perceived quality of HIV care at enrollment***	<i>...the doctor took one hour with me, he counseled me and I even went and brought my children for testing. (BF_A_02)</i> <i>...the nurse calmed me and bought me a drink. (LF_A_08)</i>
	Peer influence and stigma reduction** (Felt more comfortable and motivated after meeting many peers in the treatment center that were looking very healthy).	<i>...i met many people of my age group at the clinic looking very healthy and I was so encouraged. (LF_A_09)</i> <i>...test and treat is dropping stigma as there's a lot of discussion about HIV everywhere and patients come and see so many people including their age mates and get encouraged. 19 years meet their peers which was unlikely before. (B_HCP_04)</i>
	Improvement in health status experienced shortly after initiating ART***	<i>...i am satisfied as long as I am getting my drugs and staying healthy. (JF_A_03)''</i> <i>... i am not really bothered about the behavior of the HCPs, I know I have to take my drugs and I am no more frequently sick as before (BM_A_06)''</i>
	Free ART and elimination of the patients' financial burden linked to ART initiation and treatment**	<i>...i am happy because our drugs are given for free. I don't have to buy the drugs. (JF_A_07)</i> <i>...financial cost of paying for pre eligibility laboratory tests which used to constitute a serious burden on patients during the pre-test and treat era is completely taken off and patients now initiate ART with less financial stress.(J_HCP_01)</i> <i>...many patients are satisfied. Even the poorest get their treatment and patients who were enrolled before the test and treat are asking why this did not start during their time. (B_HCP_02)''</i>
	Multi month ARV delivery system**	<i>...they are now giving drugs for several months, I am very comfortable now because I do not have to waste my time and transport to come to the hospital every month again just to get drugs. (BF_A_10)''</i> <i>...care practice with the test and treat strategy is more liberal and friends pick up drugs for friends (J_HCP_05)''.</i> <i>...patients are much more comfortable with the multiple drug delivery system. We now give drugs for 3-6 months (B_HCP_01)_</i>

Most commonly reported*** commonly reported** least reported*

F=Female, M=Male, L=Limbe Hospital, J=Jamot Hospital, B=Bamenda, A=active patient, LTF=lost to follow up, HCP=Healthcare provider

Table 2. Health system barriers to patients' satisfaction with HIV care services

Theme	Sub-theme	Representative quotes
Health system barriers to patients satisfaction	Long patient waiting time***	<i>...they told me I'm ok and I should go and drink water and be taking those things, I came back three times and went back because they could not trace my file and I have not even started treatment. (BF_LTF_01)</i> <i>...them be di over delay me, sometimes I go come and go back without even having your treatment, nayi way I vex go me. Where I am now, the take time to ask me questions and advise me. (LF_LFU_08).</i> <i>...I did the VL tests but have never seen any of my results. (LM_A_05)</i> <i>...they delay to request for the follow up tests especially as they keep changing drugs, some even get us drunk (LF_LFU_06)</i>
	Poor patient reception and inconsistent behavior of some HCPs*** (Commonly reported by patients older in HIV care).	<i>...sometimes the nurses are very impolite and take their break when they were not supposed to and even extend it and they are now calling codes instead of names and if you miss your code you are asked to pay a fine, and the nurse even insulted me simply because I could not remember my code. (LF_A_06)</i> <i>...one man in the lab was looking at me as if I did something to deserve the infection and that's why I decided to change to another clinic. (BF_LFU_04)</i> <i>...one of the nurses in the treatment center is very arrogant, she insults people as if we are nobody, It seems she takes her problems from the house and bring to the hospital.(LF_A_02)</i>
	Overcrowding and inadequate patient counselling***	<i>...many of the HCP did not quite understand the test and treat strategy due to inadequate training, they think the test and treat means test and start immediately, and as such, they rushed the patients to start ART immediately even when the patients have not had adequate counselling and time to accept their status. (J_HCP_01)</i> <i>...the overcrowding of our treatment center following the test and treat strategy has negative implications on our ability to provide quality patient centered care which is likely to translate into low patient satisfaction. (J_HCP_02).</i> <i>...patients newly diagnosed were not given adequate counselling and therapeutic education, especially during the first few months following the test and treat. They were rushed into ART initiation and this led to a high attrition rate.(B_HCP_01)</i> <i>...will I be able to give birth to an HIV negative child [question from a patient to an interviewer]. (LF_A_04)</i> <i>... I left because the place is overcrowded and I met so many people who know me. (LM_02_LFU)</i>
	Delay between HIV diagnosis and ART initiation*	<i>...I don't know why I have not come back, I was asked to come after 6 months but I have not come until now, 2 years later, I am not taking drugs because you people refused and I have decided not to take the drugs again while you were giving to others. (BF_LFU_03)</i>
	Poor coordination between HIV testing & ART services**	<i>...I leave in Gabon and always come and do my medical examination in the hospital when I come for holidays in Cameroon. I was diagnosed and given drugs but I am not clarified how and where to continue when I go back and I don't know what to do. (LM_A_09)_</i>
	Poor flexibility in the ART delivery system**	<i>...I am a military woman sometimes when I am to go on mission for several months, I come to the hospital to get drugs to cover the period, and they asked me to present a mission order. They do not give us mission orders in my office, and sometimes I am forced to go without drugs. (LF_A_07)</i> <i>... when I am on mission and I come to take drugs for several months, they turn around and ask me to bring my mission order'' (LF_LTF_04).</i>

Most commonly reported*** commonly reported** least reported*,

F=Female, M=Male, L=Limbe Hospital, J=Jamot Hospital, B=Bamenda, A=active patient, LTF=lost to follow up, HCP=Healthcare provider

Table 3. Patient (individual) level barriers to patients' satisfaction with HIV care services

Theme	Sub-theme	Representative quotes
Barriers to patients' satisfaction	Drug side effects**	...the new drug [cortrimoxazole] given to me for which I am told to take before eating gives me serious nausea. (JM_A_06) ...they keep changing drugs, some even get us drunk (LF_LFU_06)during this period of T&T, patients commonly complaint that they were not sick before ART and became sick after starting ART [side effects of ARVs] and many of them abandoned treatment during the first few months for this reason. (B_HCP_01).
	Stigma**	...one man in the lab was looking at me as if I did something to deserve the infection [patient was crying]. (BF_02_LFU). ... I left because the place is overcrowded and I met so many people who know me. (LM_02_LFU)
	Non appreciation of the benefits of ART by asymptomatic patients***	...the many asymptomatic patients placed on ART during the test and treat period do not appreciate the benefit of ART and turn to be less satisfied. They commonly complained that they were not sick before they were given drugs which have now made them sick and uncomfortable. These patients always default and need intense counselling and follow up to keep them in care. (J_HCP_01) ...many patients come while very healthy and some argue results and don't even want to start treatment. (B_HCP_07)"
	Large tablet size of ARV and infinite treatment duration**	...the tablets are too big in size and sometimes difficult to swallow.(LF_03_LTF) ...taking the drug all days is just like prison. Prison is not only when people stay behind bars.(JF_07_A)

Most commonly reported*** commonly reported** least reported*

F=Female, M=Male, L=Limbe Hospital, J=Jamot Hospital, B=Bamenda, A=active patient, LTF=lost to follow up, HCP=Healthcare provider.

3.2. Barriers to Patients' Satisfaction with HIV Services

Slightly less than half of the participants reported varied degree of discontentment with the HIV care provided. The main barriers, classified under health system and individual level, to satisfaction are presented in Table 2 and Table 3.

3.3. Barriers to Patients' Satisfaction Reported to Have Adversely Impacted Patients' Engagement in HIV Care

Some of the barriers to patients satisfaction in Table 2 & Table 3 above were reported to have adversely impacted patients' ability to be retained in HIV care at the site, notably: Long patient waiting time, poor attitude of some HCP, poor coordination between HIV testing and ART treatment services, and non-flexibility or responsiveness of the drug delivery system to patients' specific needs, stigma and non-appreciation of the benefits of ART amongst asymptomatic patients, ARV drugs side effects and inadequate patient counselling (See representative quotes for these barriers in Table 2 & Table 3).

4. Discussions

Low patient satisfaction have been associated with poor adherence and retention in HIV care [14,17,23], posing a threat to the attainment of universal ART coverage. In Cameroon, there is a paucity in literature on patients' satisfaction and its barriers following the implementation of the HIV T&T strategy. This study described perceived patients' satisfaction, barriers and implications on engagement in ART care from patients' and HCP's perspective. Barriers included: long patient waiting time, poor quality of reception and inconsistency in HCP attitude, poor flexibility in the ART delivery system, stigma, large size of the ARV drugs/indefinite duration of therapy, ARV side effects, poor coordination between HIV testing and ART services, delay between time of HIV diagnosis and

ART initiation, patients' perceived feeling of wellness coupled with adverse side effects of ARVs amongst asymptomatic patients, and overcrowding at the HIV clinics. An understanding of these factors is essential to guide health system responsiveness to patients' needs and consequently improved retention and ART outcomes.

4.1. Patients' Satisfaction with ART Services and Reasons

This study revealed fluctuations in patients' satisfaction, ranging from expression of high to low. We also noted that patients were relatively more satisfied with the care provided at enrollment compared to subsequent care. It is expected that health care providers, generally, would show more empathy and give more time in counselling at the time of HIV diagnosis and ART initiation. The lower satisfaction reported over time suggests that patients may still be in need of psychosocial support even after several months or years following ART initiation, underscoring the need for HCP to develop and continue to provide a standardized and contextualized package of care to patients across the care continuum. A study conducted in the BRH in 2014 reported a 92.1% satisfaction amongst patients on ART [24]. Another study in Ethiopia in 2012 reported 89.6% satisfaction [25] and another in India reported 61.3% overall satisfaction in 2016 [26]. However, lower levels (42,4%) of patients' satisfaction with HIV care services has been reported in other countries [27]. The major reasons reported for patients' satisfaction included: good quality of counselling and patient reception especially at enrollment, peer influence and stigma reduction, improvement in patients' health status following ART initiation, availability of free ARVs and care, and multiple-month ARVs delivery. It is worth noting that peer influence, stigma reduction, free ARVs and HIV care, multiple month drug delivery system was reported by patients and HCPs. Most of these reasons have been reported by other studies [14,15,25]. In this study, the relationship between peer influence and patient satisfaction was linked to the patients feeling more comfortable and encouraged, after meeting their peers

who were looking very healthy at the HIV clinic. In a similar way, some participants reported they felt less stigmatized after meeting many peers and other people at the treatment center, looking strong and healthy, giving them the feeling that they were just part of a larger group. Although the HIV T&T strategy has not shown sufficient evidence in stigma reduction [28], it has however been associated with much higher retention and viral suppression rate [29]. Regarding improvement of the patients' health status, several studies have elucidated an overall increase in patients' satisfaction with improvement in their health status [30,31]. The perceived relationship between lower cost or free HIV care and increased patients' satisfaction reported in this study has been reported [32]. This suggests that the free ARV and HIV care in Cameroon contribute to overall patients' satisfaction in our HIV clinics. Finally, the multiple-month drug delivery system, adopted by some HIV clinics in this study, was not only reported to have reduced patients' fare, it also served time as some patients had to come to the clinic for drug refill only twice in a year. It is however necessary to assess the impact of this approach on patients' clinical follow up and long term treatment outcomes.

4.2. Barriers to Patient Satisfaction

The identified reasons for low patients' satisfaction included: long patient waiting time, poor quality of patient reception and inconsistency in HCPs' attitude, poor flexibility in the ART delivery system, stigma, large tablet size of ARVs/indefinite duration of therapy, ARVs side effects, poor coordination between HIV testing and ART services, delay between time of HIV diagnosis and ART initiation, patients' perceived feeling of wellness coupled with adverse side effects of ARVs amongst asymptomatic patients (non-appreciation of ART), and overcrowding and inadequate counselling at the HIV clinics. Most of these reasons have been reported by other studies [13-16,25,33]. Barriers reported by patients and HCPs included overcrowding, inadequate counselling, and ARV drugs side effects. Long patient waiting time was the most commonly patient reported reason for dissatisfaction with HIV care, and it seems to be a growing concern following the implementation of the HIV T&T strategy in Cameroon, characterized by a rapid increase in the patient volume, overcrowding in HIV treatment centers and overwhelming of the health man power.

However, some of these barriers seemed not to have been extensively described by other studies. These include; long gap between time of HIV diagnosis and ART initiation, poor coordination between HIV testing and ART services, poor flexibility in ART drug delivery system, large tablet size of ARVs and indefinite treatment duration, inconsistent HCP attitude, and perceived feeling of wellness amongst asymptomatic patients. Delay in ART initiation following HIV diagnosis was interestingly identified as one of the reasons for patients' dissatisfaction. It was interpreted as some sort of mal intention on the part of the HCP. It is worth noting that this was limited to patients enrolled in care during the pre-HIV T&T era, who did not start ART for ineligibility reason, and came back and initiated ART during the test and treat period. A

participant compared her experience with those enrolled during the test and treat period, and asked why she was not also placed immediately on ART after her HIV diagnosis. Poor coordination between HIV testing and ART services also emerged as one of reasons for low patient satisfaction. Provider initiated HIV testing and counselling (PITC) amongst other strategies enforced to accelerate HIV testing could have led to the people diagnosed of HIV in transit or out of their communities of residence without adequate orientation on how to continue accessing ARVs. Poor coordination between healthcare actors has been reported as a health system barrier to HIV care access [34]. Systems to ensure sustainable linkage of people diagnosed HIV positive to appropriate HIV treatment services seem to be inadequate within the test and treat context. Mechanisms to ensure effective referral and counter referral to ART services for patients diagnosed out of their communities of residence need to be put in place and reinforced. Perceived feeling of not being sick pointed out by HCP as a reason for lower satisfaction was not very surprising as some studies have shown perceived lack of need for medical services as a cause of ART attrition amongst asymptomatic patients and lower satisfaction amongst high CD4 count patients [27,35]. These patients were generally not sick at the time of diagnosis and may not really appreciate the benefits of being on ART and dealing with ARV side effects and associated stigma. Such patients require more counselling and education on the benefits of early ART initiation. Non flexibility or poor responsiveness of the ART drug delivery system to specific client needs was also noted as a reason for patient dissatisfaction. Some participants, with occupations that require them to frequently work out station for several weeks or months, expressed difficulties getting drugs from the HIV clinic to cover the period of time they will be out. Some reported that the HIV clinic requires them to present a mission order prior to getting drugs, which was often not available. This unfortunately constituted one of the health system barriers to ART access [33,34]. It may be necessary to investigate and implement strategies to increase the responsiveness of clinic level drug delivery systems to patients' needs. Large size of the ARVs used was also reported to have rendered the drugs difficult to swallow. To some, it was discouraging having to take the drug every day for the rest of their lives, and indicated they would be more satisfied if the ARVs were taken once or twice a week. These could constitute some important considerations during patient counselling and guide research oriented towards improving ARVs friendliness. There is need to investigate these factors further in order to better improve overall patients' satisfaction and HIV treatment outcomes.

4.3. Barriers to Patient Satisfaction Linked to the Implementation of the HIV T&T Strategy

Barriers to optimal patients' satisfaction including; low quality of interaction between the patients and the HCP, patients' perceived feeling of wellness coupled with adverse side effects of ARVs amongst asymptomatic patients, rapid increase in patients' volume and overcrowding in

HIV clinics, were reported by some HCPs to be attributable to the implementation of the HIV T&T strategy. This seems likely given that the HIV T&T strategy is characterized by a rapid increase in the volume of patients on ART, and increased number of asymptomatic patients initiating ART, a subgroup that has been associated with higher ART attrition [35,36,37,38]. As discussed above, avoiding rushing ART initiation when patients are not adequately prepared, providing more counselling and therapeutic education especially to asymptomatic patients and balancing HCP to patient ratio may optimize patients' satisfaction in the era of the universal test and treat strategy.

4.4. Barriers to Patient Satisfaction Perceived to have Adversely Impacted Patients' Ability to Effectively Engage in Care

Finally, the barriers to optimal patients' satisfaction, perceived to have negatively impacted the patients' ability to effectively engage in care included: Long patient waiting time, poor reception and attitude of some HCP, poor coordination between HIV testing and ART treatment services, non-flexibility or poor responsiveness of the drug delivery system to patients' specific needs, non-appreciation of the benefits of ART by asymptomatic patients, inadequate counselling and rushing patients to initiate ART due to initial misunderstanding of the HIV T&T principle. As reported by some HCPs, the last three factors were responsible for the very high attrition rate experienced in their clinics during the first year of the implementation of the HIV T&T strategy. Most of these factors, which have been discussed above, constitute health system barriers to effective delivery of HIV care services to patients [34]. Thus, a high consideration should be given to health system barriers when designing strategies to improve patients' satisfaction and engagement in HIV care and services.

5. Conclusion

Perceived patients' satisfaction varied with HIV care services provided. Relative to long term HIV care, patients were generally more satisfied with initial care. The reasons for patients' satisfaction or dissatisfaction were both patient and health system related, though health system barriers were most implicated. The barriers reported to have adversely influenced patients' ability to effectively engage in ART services, some of which were linked with the HIV T&T strategy included: Long patient waiting time, poor attitude of some HCPs, poor coordination between HIV testing and ART treatment services, non-flexible ARV delivery system, non-appreciation of the benefits of ART by asymptomatic patients, inadequate counselling and rushing patients to initiate ART. Taking into account these barriers may be useful in evaluating and improving the quality of HIV care. Quantitative studies to investigate the association and impact of the aforementioned factors on patient satisfaction are needed.

6. Public Health Implications of the Study

The universal HIV T&T strategy, which is the global approach to eliminate HIV/AIDS by 2030, is still relatively new in many SSA countries. Its successful implementation depends on early evaluation of its effectiveness in different settings and communities, and learning from the experiences to further improve its implementation. This study described the health system and individual barriers to patients' satisfaction, a major determinant of ART retention and treatment outcome. Knowledge of these barriers is needed to improve the patients' satisfaction, and thus, advancing towards attaining the USAIDS 90-90-90 target.

7. Limitations of the Study

This study was a qualitative, thus, the findings are subjective and not generalizable. However, the study was conducted in three hospitals in three different regions in Cameroon, and it assessed both patients' and HCP's perspectives. Moreover, the study revealed an in-depth understanding of patients' satisfaction and its barriers, which could not have been unveiled by a quantitative design. Finally, the findings of this study serve as an important basis for generating hypothesis that can be verified by quantitative studies.

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Statement of Competing Interests

The authors have no competing interests.

List of Abbreviations

HIV	Human immunodeficiency virus
HIV T&T	HIV test and treat
HCP	HIV care provider
ART	Antiretroviral treatment
ARV	Antiretroviral
WHO	World Health Organization
RNA	Ribonucleic Acid
SSA	Sub Saharan Africa

References

- [1] Horberg MA, Hurley LB, Silverberg MJ, Klein DB, Quesenberry CP, Mugavero MJ. Missed Office Visits and Risk of Mortality Among HIV-Infected Subjects in a Large Healthcare System in the United States. *AIDS Patient Care STDs*. 2013 Aug; 27[8]: 442-9.
- [2] Mugavero MJ, Lin H-Y, Willig JH, Westfall AO, Ulett KB, Routman JS, et al. Missed Visits and Mortality in Patients Establishing Initial Outpatient HIV Treatment. *Clin Infect Dis Off Publ Infect Dis Soc Am*. 2009 Jan 15; 48[2]: 248-56.
- [3] Park WB, Choe PG, Kim S-H, Jo JH, Bang JH, Kim HB, et al. One-year adherence to clinic visits after highly active antiretroviral therapy: a predictor of clinical progress in HIV patients. *J Intern Med*. 261[3]: 268-75.
- [4] Fox MP, Rosen S. Patient retention in antiretroviral therapy programs up to three years on treatment in sub-Saharan Africa, 2007-2009: systematic review. *Trop Med Int Health TM IH*. 2010 Jun; 15 Suppl 1: 1-15.
- [5] Gill VS, Lima VD, Zhang W, Wynhoven B, Yip B, Hogg RS, et al. Improved Virological Outcomes in British Columbia Concomitant with Decreasing Incidence of HIV Type 1 Drug Resistance Detection. *Clin Infect Dis Off Publ Infect Dis Soc Am*. 2010 Jan 1; 50[1]: 98-105.
- [6] Das M, Chu PL, Santos G-M, Scheer S, Vittinghoff E, McFarland W, et al. Decreases in Community Viral Load Are Accompanied by Reductions in New HIV Infections in San Francisco. *PLOS ONE*. 2010 Jun 10; 5[6]: e11068.
- [7] Axelrad JE, Mimiaga MJ, Grasso C, Mayer KH. Trends in the Spectrum of Engagement in HIV Care and Subsequent Clinical Outcomes Among Men Who Have Sex with Men [MSM] at a Boston Community Health Center. *AIDS Patient Care STDs*. 2013 May; 27[5]: 287-96.
- [8] Gardner EM, McLees MP, Steiner JF, del Rio C, Burman WJ. The Spectrum of Engagement in HIV Care and its Relevance to Test-and-Treat Strategies for Prevention of HIV Infection. *Clin Infect Dis Off Publ Infect Dis Soc Am*. 2011 Mar 15; 52[6]: 793-800.
- [9] Bemelmans M, Baert S, Goemaere E, Wilkinson L, Vandendyck M, van Cutsem G, et al. Community-supported models of care for people on HIV treatment in sub-Saharan Africa. *Trop Med Int Health TM IH*. 2014 Aug; 19[8]: 968-77.
- [10] Rosen S, Fox MP, Gill CJ. Patient Retention in Antiretroviral Therapy Programs in Sub-Saharan Africa: A Systematic Review. *PLOS Med*. 2007 Oct 16; 4[10]: e298.
- [11] World Health Organisation. TTR-TaskShifting.pdf [Internet]. 2008 [cited 2018 Jul 15]. Available from: <http://www.who.int/healthsystems/TTR-TaskShifting.pdf>.
- [12] Babatunde OA, Ojo OJ, Atoyebi OA, Ekpo DS, Ogundana AO, Olaniyan TO, et al. Seven year review of retention in HIV care and treatment in federal medical centre Ido-Ekiti. *Pan Afr Med J [Internet]*. 2015 14 [cited 2018 Jul 15]; 22. Available from: <http://www.panafrican-med-journal.com/content/article/22/139/full/>
- [13] Wouters E, Heunis C, van Rensburg D, Meulemans H. Patient satisfaction with antiretroviral services at primary health-care facilities in the Free State, South Africa--a two-year study using four waves of cross-sectional data. *BMC Health Serv Res*. 2008 Oct 9; 8: 210.
- [14] de Jager GA, Crowley T, Esterhuizen TM. Patient satisfaction and treatment adherence of stable human immunodeficiency virus-positive patients in antiretroviral adherence clubs and clinics. *Afr J Prim Health Care Fam Med [Internet]*. 2018 Jun 18 [cited 2018 Jul 15]; 10[1]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6018455/>.
- [15] Miller JS, Mhalu A, Chalamilla G, Siril H, Kaaya S, Tito J, et al. Patient satisfaction with HIV/AIDS care at private clinics in Dar es Salaam, Tanzania. *AIDS Care*. 2014; 26[9]: 1150-4.
- [16] Asfaw E, Dominis S, Palen JGH, Wong W, Bekele A, Kebede A, et al. Patient satisfaction with task shifting of antiretroviral services in Ethiopia: implications for universal health coverage. *Health Policy Plan*. 2014 Sep; 29[Suppl 2]: ii50-8.
- [17] Flickinger TE, Saha S, Moore RD, Beach MC. Higher Quality Communication and Relationships are Associated with Improved Patient Engagement in HIV Care. *J Acquir Immune Defic Syndr* 1999. 2013 Jul 1; 63[3]: 362-6.
- [18] Poles G, Li M, Siril H, Mhalu A, Hawkins C, Kaaya S, et al. Factors associated with different patterns of non-adherence to HIV care in Dar es Salaam, Tanzania. *J Int Assoc Provid AIDS Care*. 2014; 13[1]: 78-84.
- [19] Ford RC, Bach SA, Fottler MD. Methods of Measuring Patient Satisfaction in Health Care Organizations. *Health Care Manage Rev*. 1997 Apr; 22[2]: 74.
- [20] Gunning CS. Striving for quality in health care: An inquiry into policy and practice: By R. Heather Palmer, Avedis Donabedian, and Gail J. Povar. Ann Arbor, MI, Health Administration Press, 1991, 177 pages. *J Prof Nurs*. 1994 Mar 1; 10[2]: 120-1.
- [21] Peltzer K. Patient experiences and health system responsiveness in South Africa. *BMC Health Serv Res*. 2009 Jul 14; 9: 117.
- [22] University of Buea Faculty of Health Sciences Institutional Review Board [Internet]. [cited 2019 Mar 9]. Available from: <http://www.irb.fhs.ubuea.cm/index.php/contact-us>
- [23] Dang BN, Westbrook RA, Hartman CM, Giordano TP. Retaining HIV Patients in Care: The Role of Initial Patient Care Experiences. *AIDS Behav*. 2016 Oct 1; 20[10]: 2477-87.
- [24] Wung BA, Peter NF, Atashili J. Clients' satisfaction with HIV treatment services in Bamenda, Cameroon: a cross-sectional study. *BMC Health Serv Res [Internet]*. 2016 Jul 19 [cited 2019 Feb 14]; 16. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4950718/>
- [25] Tessema SB, Adane MM. Assessment of antiretroviral treatment [ART] care service provision in Tigray Region health centers, North Ethiopia. *BMC Health Serv Res [Internet]*. 2015 Sep 10 [cited 2019 Feb 14]; 15. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4566360/>.
- [26] Dixit S, Verma N, Shrivastava N, Sharma M, Pradhan SK, Agarwal S. Patient satisfaction with ART centre services among people living with HIV: a cross sectional study in a tertiary care hospital, Chhattisgarh, India. *Int J Community Med Public Health*. 2018 May 22; 5[6]: 2564-71.
- [27] Tran BX, Nguyen NPT. Patient Satisfaction with HIV/AIDS Care and Treatment in the Decentralization of Services Delivery in Vietnam. *PLOS ONE*. 2012 Oct 5; 7[10]: e46680.
- [28] CHAN BT, TSAI AC. Trends in HIV-related Stigma in the General Population During the Era of Antiretroviral Treatment Expansion: An Analysis of 31 Sub-Saharan African Countries. *J Acquir Immune Defic Syndr* 1999. 2016 Aug 15; 72[5]: 558-64.
- [29] Universal test and treat greatly improves retention in care [Internet]. [cited 2019 Feb 15]. Available from: <http://www.aidsmap.com/Universal-test-and-treat-greatly-improves-retention-in-care/page/3313714>.
- [30] Xiao H, Barber JP. The effect of perceived health status on patient satisfaction. *Value Health J Int Soc Pharmacoeconomics Outcomes Res*. 2008 Aug; 11[4]: 719-25.
- [31] WHO | How does satisfaction with the health-care system relate to patient experience? [Internet]. WHO. [cited 2019 Mar 8]. Available from: <https://www.who.int/bulletin/volumes/87/4/07-050401/en/>.
- [32] Xesfingi S, Vozikis A. Patient satisfaction with the healthcare system: Assessing the impact of socio-economic and healthcare provision factors. *BMC Health Serv Res [Internet]*. 2016 Mar 15 [cited 2019 Mar 8]; 16. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4793546/>.
- [33] Ankomah A, Ganle JK, Lartey MY, Kwara A, Nortey PA, Okyerefo MPK, et al. ART access-related barriers faced by HIV-positive persons linked to care in southern Ghana: a mixed method study. *BMC Infect Dis [Internet]*. 2016 Dec 7 [cited 2019 Feb 15]; 16. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5142337/>.
- [34] Colvin CJ, Konopka S, Chalker JC, Jonas E, Albertini J, Amzel A, et al. A Systematic Review of Health System Barriers and Enablers for Antiretroviral Therapy [ART] for HIV-Infected Pregnant and Postpartum Women. *PLOS ONE*. 2014 Oct 10; 9[10]: e108150.
- [35] Dombrowski JC, Simoni JM, Katz DA, Golden MR. Barriers to HIV Care and Treatment Among Participants in a Public Health HIV Care Relinkage Program. *AIDS Patient Care STDs*. 2015 May 1; 29[5]: 279-87.
- [36] Rougemont M, Stoll BE, Elia N, Ngang P. Antiretroviral treatment adherence and its determinants in Sub-Saharan Africa: a prospective study at Yaounde Central Hospital, Cameroon. *AIDS Res Ther*. 2009 Oct 12; 6: 21.

- [37] Koole O, Tsui S, Wabwire-Mangen F, Kwesigabo G, Menten J, Mulenga M, et al. Retention and risk factors for attrition among adults in antiretroviral treatment programmes in Tanzania, Uganda and Zambia. *Trop Med Int Health TM IH*. 2014 Dec; 19[12]: 1397-410.
- [38] Boyer S, Iwuji C, Gosset A, Protopopescu C, Okesola N, Plazy M, et al. Factors associated with antiretroviral treatment initiation amongst HIV-positive individuals linked to care within a universal test and treat programme: early findings of the ANRS 12249 TasP trial in rural South Africa. *AIDS Care*. 2016; 28[Suppl 3]: 39-51.



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