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## Perceptions of Community and Clinic-Based Adherence Clubs for Patients Stable on Antiretroviral Treatment: A Mixed Methods Study

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### Abstract

Adherence clubs for patients stable on antiretroviral treatment (ART) offer decongestion of clinics and task-shifting, improved adherence and retention in care. Findings on patient acceptability by club location (in the clinic vs. the community) are limited. This was a mixed-methods study set within a randomized controlled trial of community versus clinic-based adherence clubs for retention in care at Witkoppen Health and Welfare Centre in Johannesburg, South Africa. Participants were surveyed on preferences for adherence club-based care (e.g. location, convenience). We conducted in-depth interviews (IDIs) with 36 participants, and surveyed 568 participants: 49% in community-based clubs and 51% in clinic-based clubs. Participants in both arms favorably rated adherence clubs. Almost all (95%) in clinic-based clubs would recommend them to a friend, while fewer (88% in community-based club participants would do so ( $p = 0.004$ ). Participants found clubs promoted social support, and were convenient and time-saving, though concerns around stigma and access to other health care were noted within community-based clubs. Adherence clubs are a highly acceptable form of differentiated care for stable ART patients. These data indicate that clinic-based clubs may be preferred above community-based clubs, potentially for reasons of stigma and access to additional health care services.

### Keywords

HIV; Adherence clubs; Retention in care; South Africa; Mixed methods

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Compliance with Ethical Standards

**Conflict of interest** The authors declare no conflicts of interest.

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## Introduction

South Africa has the largest antiretroviral treatment (ART) program in the world, with approximately 3.8 million people on treatment in 2017 [1]. In line with recommendations from the World Health Organization, South Africa implemented the “universal test and treat” strategy in 2016, expanding ART eligibility to all people living with HIV regardless of CD4 count [2, 3]. Expanded ART access could further overburden an already stressed healthcare system thereby aggravating the problem of poor retention on ART due to challenges with delivery and quality of care, stressed ART supply chains leading to stockouts and inefficient monitoring of drug resistance and loss from care [4–6]. At the individual level, offering ART to patients with less immunosuppression may negatively influence uptake or adherence for a variety of reasons, including the individual not perceiving themselves as “ill”, fear of disclosure and stigma, or side effects outweighing perceived medication benefits [7–10]. As a consequence, the UNAIDS target of 90% of all people on ART achieving viral suppression may become difficult to reach without innovative interventions [11].

The South African National Department of Health (DOH) has identified a need for innovative and efficient strategies that improve ART adherence and retention in care, while also alleviating pressure placed on the health system by expanded access to ART [12]. Adherence clubs are one such strategy that has been recommended by the DOH for implementation in South Africa. Adherence clubs streamline the management of ART by facilitating task-shifting to lower level health care workers, decongesting health care facilities, and reducing waiting times for patients [13, 14]. ART adherence clubs are typically organized as groups of virally suppressed patients who meet every 2 to 3 months for medication pick-up and counseling. Adherence clubs may be able to address key barriers to adherence and retention care, such as lengthy clinic wait times and time away from income generating activities in order to collect ART [15, 16]. Adherence clubs have been implemented at primary care clinics and at community-based venues in South Africa, Kenya, Malawi, and Zambia [14, 17–20]. Two large observational studies, both conducted in Cape Town, South Africa, have suggested that adherence clubs result in reduced loss to follow-up (57–67%) and viral rebound (67%) relative to the routine standard of individual-based care [13, 14]. Findings from the parent trial of this study, a randomized controlled trial (RCT) comparing the effectiveness of community versus clinic-based adherence clubs on retention in care, demonstrated that loss from club based care was 38% higher in community-based clubs, and that overall retention in club-based care whether delivered at the clinic or in the community was poor (53% over 24 months) [21]. Limited findings suggest that patient acceptability of adherence clubs is high [9, 17, 19, 22], however there are currently no published studies in the literature specifically examining the importance or patient preference for clinic versus community-based location.

We performed a mixed methods study within a RCT designed to compare the effectiveness of community versus clinic-based adherence clubs on retention in care [21]. The study objective was to explore patient acceptability and attitudes towards community and clinic-based adherence clubs.

## Methods

### Parent Trial and Study Setting

This study was nested within a pragmatic RCT (Pan African Clinical Trial Registry PACTR201602001460157) comparing community versus clinic-based adherence clubs for HIV-positive stable patients (virally suppressed, on ART for 1 year and free of comorbidities) who initiated ART at Witkoppen Health and Welfare Centre (Witkoppen Clinic) in Johannesburg, South Africa. Witkoppen Clinic is a busy primary care clinic seeing approximately 2000 patients on ART per month. The clinic population resides mainly in the surrounding densely populated urban and peri-urban communities of Diepsloot, Cosmo City, Kya Sands and Msawawa.

For the RCT, eligible patients were enrolled between February 2014 and May 2016, and were randomized 1:1 to either a community or clinic-based adherence club, stratified by area of residence. The primary outcome of the trial was loss from club-based care, defined as loss to follow-up or referral to clinic-based standard of care (SOC) because of violation of rules around club attendance, viral rebound (1 viral load measurement > 400 copies/ml or 2 measurements of 50–400 copies/ml), pregnancy, development of a co-morbidity requiring clinic-based care, or voluntary return to SOC. Loss from club-based care was chosen as the primary study outcome as it represented a failure of the main purpose of the intervention, to shift stable patients to streamlined care that benefits both the patient and the clinic. Participants were followed up for 24 months after enrollment (for additional details on the RCT, see text, Supplemental Digital Content 1).

### Intervention

The adherence club intervention followed the basic model proposed by Luque-Fernandez et al. [13]. Each club had 20–30 participants, was run by a lay HIV counsellor and met every other month. At each club visit, participants were screened for symptoms of tuberculosis, weighed, received a pregnancy test (if female) and participated in a group adherence counselling session led by the counsellor. Participants received a 2-month supply of ART medication at each club visit. Once annually, participants attended a medical visit at the clinic. Participants who were unable to make a club visit could send a “buddy” or pick their medication up at the clinic within 5 days of the club visit (see Supplement 1 for details).

Clinic-based clubs were held at Witkoppen Clinic. Community-based clubs were held at community venues (including community-based non-governmental organizations, churches and community centers) within the patients’ area of residence.

### Acceptability Questionnaire

At the 1-year medical visit (halfway through follow-up), all participants retained in adherence clubs were given a short acceptability questionnaire. This instrument covered general aspects of adherence clubs (e.g. location, convenience, duration, scheduling, quality of care, club rules and privacy), as well as some topics specific to those in community-based clubs (e.g. setting, safety and confidentiality). The entire acceptability questionnaire, with

annotation for each question as to which responses were coded as ‘rated favorably’, can be found in Supplemental Digital Content 2.

### Qualitative Data Collection

We conducted 36 in-depth interviews (IDIs) during trial implementation with club participants between March 2015 and May 2016, including 17 individuals from clinic-based clubs and 19 from community-based clubs. To represent the full array of experiences, we purposively recruited participants who were retained in club-based care, as well as those who returned to clinic-based SOC for reasons mentioned above. Among the 17 clinic-based club participants, 7 were male, 10 female. Seven were still attending their clinic-based club and 10 were returned to clinic-based SOC prior to the interview. Among the 19 community-based participants, 4 were male, 15 female. Ten were still attending their community-based club and nine were returned to clinic-based SOC. Among the 18 IDI participants who were returned to clinic-based SOC, reasons included viral rebound ( $n = 7$ ), missing a medication pickup entirely ( $n = 7$ ), pregnancy ( $n = 2$ ), TB diagnosis ( $n = 1$ ), and 2 consecutive late pickups ( $n = 1$ ). Multiple participant perspectives were sought to strengthen the credibility of the qualitative data.

IDIs were performed in English or Zulu by study staff. All study staff who conducted IDIs had prior experience with qualitative interviewing and received additional training in qualitative interviewing from senior research staff. All IDIs were audio recorded. Using a topical interview guide, IDIs explored overall experiences around adherence club participation including benefits and disadvantages, club location, club structure and rules. Completed interviews were transcribed word-for-word and translated to English (as necessary) by study staff trained in qualitative methods.

### Data Analysis

Basic descriptive statistics were used to characterize the cohort. Responses to the questionnaire were compared between clinic and community-based club attendees using a difference of proportions test. We created a summary acceptability index using the first 11 questions that cover general aspects of adherence clubs. Positive responses were scored 2 points, intermediate responses 1 point and negative responses 0 points. Details of how individual questions were scored can be found in Table, Supplemental Digital Content 2. The index ranged from 0 to 22 points, with higher scores representing greater acceptability of the adherence club intervention. Summary index scores were compared between clinic and community-club based attendees using a Student’s *T* test. We used bivariate and multivariate Poisson regression (as the log binomial model would not converge) with robust standard error estimation [23] (to account for clustering by club) to compare individual-level predictors of a participant recommending their own club type (community or clinic-based) to a friend. This outcome was chosen as it represented a “summary” of a person’s overall acceptability of the intervention. We used the Chi square test to assess goodness-of-fit. The multivariate model included sex, age, baseline employment status and baseline CD4 count as potential confounders. Statistical significance was considered as  $p < 0.05$ . All statistical analyses were conducted using Stata 13.1 (College Station, TX).

For the IDIs, we used an iterative process of reading, re-reading and writing analytical memos to develop an initial codebook with deductive codes based on the interview guide and inductive codes added based on the emergent themes and concepts. Codes were then applied by two independent coders (M.M. and N.S.W.). Throughout the process, codes were discussed, and coding compared for confirmation of accuracy and interpretation. Discrepancies in coding were discussed by the two independent coders until consensus was reached on the appropriate application of the code or codes. Reflexive notes were included in analytical memos and both independent coders engaged in ongoing discussions together and with the study team to help distinguish their views from those of study participants. Themes that emerged from the coding were reviewed and discussed by the study team, with illustrative quotes selected to represent the themes.

For our mixed methods approach, we utilized concurrent triangulation both in our methodology and analysis, with qualitative and quantitative data used in the analysis collected separately in overlapping time periods and results initially generated independently, followed by interpretation of the findings through comparisons for concurrence and discordance [24]. This design was selected by the research team prior to the implementation of the adherence clubs RCT to maximize the strengths of each method to explore the research questions of interest. Responses were not matched by participants between qualitative and quantitative approaches.

### **Ethical Considerations**

This study was approved by the Institutional Review Boards at the University of North Carolina (Reference Number 13–3900), Johns Hopkins University (no reference number given) and the University of the Witwatersrand (Reference Number M131121). All trial participants provided written informed consent. IDI participants provided additional written informed consent for the interview and audio recording.

## **Results**

### **Quantitative Findings**

Demographic and baseline clinical characteristics of the club attendees included in the analysis are presented in Table 1. Two-thirds (66%) were women, median age was 38 years (IQR 33–44 years), and most were employed (82%).

Participants in both the community and clinic-based arms overwhelmingly rated all aspects of adherence clubs favorably, with no differences between arms (Table 2, questions 1–16). The median club acceptability summary index score was 21/22 (IQR 20–22) for participants and did not differ by club type ( $p = 0.394$ ). Participants in community-based clubs were highly satisfied with club location, safety and confidentiality (Table 2, questions 17–20).

When asked what they would recommend to a friend in their situation, 95% of participants in the clinic-based club arm stated they would recommend clinic-based clubs. Fewer (88%) community-based club participants would recommend community-based clubs to a friend ( $p = 0.004$ ). After controlling for age, gender, employment status and baseline CD4 count, this difference remained, with an 8% decrease in recommending one's own club type to

a friend among community-based club participants as compared to a clinic-based club participant (adjusted prevalence ratio, aPR 0.92, 95% CI 0.88–0.92,  $p = 0.003$ ). Aside from the type of club, there were no other individual-level characteristics associated with club type recommendations (Table 3).

### Qualitative Findings

Characteristics for the 36 qualitative study participants are provided in Table 1. Participants described a number of factors that contributed to their impressions of adherence clubs, the impact of the club on their lives, and the services they received at the club. Key themes that emerged were social support and peer relationships, club-based service delivery, stigma and confidentiality, perceptions of club rules and club location.

**Social Support and Peer Relationships**—Clinic and community club participants overwhelmingly reported that an important benefit of the club was the facilitation of new relationships, ability to information share and receive peer support from other individuals living with HIV, as relayed below:

Yes, we share advice with the friends [other club members] because sometimes you don't feel free when you are speaking to someone. But when you are in a club, you talk and talk, and talk. You can ask a friend if there is a problem. –Female, age 38, community-based club, retained in club-based care

New found openness or “freedom” to discuss HIV-related issues, as well as sources of peer support, friendship and group-based counselling led many participants to feel more empowered in their ability to accept their HIV status and motivated to take ART. As described by one participant below, the club facilitated acceptance of one's HIV status and allowed participants to share and receive positive views on taking and adhering to ART:

In the club, we used to share that you must not be stressful, you are not supposed to stress yourself with your status. It's not the end of the world. You must stand up and tell yourself that “I am like anyone, I am like anyone. Even though I am taking the tablets but I am like anyone, and I will live.” And then we are sharing that if...like you see now I look like I am not sick; don't stop taking your tablets; continue taking your tablets. –Female, age 31, community-based club, retained in club-based care

**Club-Based Service Delivery**—Participant perceptions of the delivery of club-based services included a variety of insights. Participants found the attitudes of club staff and the short amount of time required to attend a club to be particularly important features.

The majority of participants commented favorably on the quality of service delivery by club staff, particularly the punctuality and positive attitude of club staff. As described by one participant, this quality of service was an important feature of the adherence clubs:

Everything is good there; if they say 8 o'clock it's 8 o'clock or 10 past 8. From there, if you can't come this month, I can send someone I trust and give them a permission to go and get my medication...at the club it's like they respect us and they love their job, so that's what I see. They love their job, so I am feeling happy

when I have to go there. –Male, age 38, clinic-based club, returned to clinic-based SOC for viral rebound

For both club types, the amount of time saved by attending an adherence club was a significant benefit, and improved lives as it allowed participants to sleep later, go to work after their club, reduced the need for childcare, and improved personal safety from not having to travel when it is dark. The advantage of the short duration of the club visits is relayed by one participant:

What I like about it is that it's making things easy especially about the time. Keeping the time of being in the clinic and to wait and queue for the whole day – it is just for 1-hour maximum time. –Female, age 33, clinic-based club, retained in clinic-based care

**Stigma and Confidentiality**—HIV-related stigma was a prominent theme in the majority of interviews. Community-based participants expressed concerns that the community location of their club could lead to unintended disclosure of their HIV status, as described in the quotation below:

If I am in a community club, I am also scared of my place [club location] because I have my friends, my family, and everything. I didn't tell anyone about my status, so if I fetch my tablets in my community it's going to be a problem because now people are going to ask me "why are you here?" –Female, age 30, community-based club, returned to clinic-based SOC for not collecting medication within five days of a missed club visit

Several participants expressed concern about employers becoming suspicious of absences from work on a set day and time while participating in the clubs. For example, one participant explained their concern:

The bosses would not be happy to see us every month having to give an excuse, or every two months giving an excuse like it's a programmed sickness. So they said "no, you cannot be planned for your sickness—that you will be sick on this day, and you will be sick on that day." –Male, age 53, clinic-based club, returned to clinic-based SOC for viral rebound

Conversely, many participants felt that the short duration of the club visit and having to come infrequently was beneficial to protecting their confidentiality:

I can come to the club, then go to work. I would just say [to my employer], I was here for family planning or something." –Female, age 26, community-based club, returned to clinic-based SOC for two consecutive missed clubs and late medication pickups.

**Perceptions of Club Rules**—The majority of participants who were active in the clubs at the time of the qualitative study, as well as those removed from the clubs and returned to the clinic-based SOC, nevertheless felt that the rules governing whether participants could stay in club-based care were fair. For example, when asked by the interviewer whether it was fair to be removed from their club for missing two consecutive club visits, a 26 year old female

participant who was returned to SOC for two consecutive missed visits responded: “Yes. It was fair because it’s the rules.”

Participants experienced multiple challenges in attending their club on a fixed schedule, including work opportunities that arose, unanticipated travel, or occasional confusion over the date of the club. A work related challenge as described by one participant:

I defaulted; I didn’t go to the club...the reason [was] because I got a job and I was supposed to go to work that Tuesday.” –Female, age 35, community-based club, returned to clinic-based SOC for missing a medication pickup entirely.

Maintaining an undetectable viral load was understood as a club rule by participants. Despite understanding of the rule itself, interviews highlighted that part of the challenge of following the rule may have been a lack of participant understanding of viral suppression overall. Most participants discussed various reasons that one might experience viral rebound and be returned to SOC. While some mentioned the importance of ART adherence, many listed alternate reasons for not being virally suppressed, such as having sex with their HIV positive partner without using a condom:

I am saying I slept with my wife without a condom. That is a very open sentence and I am very true this is it. The suspicion that I am having if that is not the one [reason] that has maybe triggered my viral [load] to increase —Male, age 53, clinic-based club, returned to clinic-based SOC for viral rebound

Other participants cited poor nutrition, alcohol use, and stress as key factors that influence viral load, though poor adherence was not a salient theme. A participant below describes a life stressor being influential on viral load:

You say my virus [viral load] is too higher. Yes it’s too higher because my brother’s daughter is missing...I can’t sleep and that’s why I am feeling bad. I take my tablets very nice, but my heart is very, very sore; now that’s why.” –Female, age 59, clinic-based club, returned to clinic-based SOC for viral rebound

**Club Location**—Community-based clubs were located in a variety of venues such as churches, community centers, and spaces operated by community-based non-governmental organizations, selected for their potential to maintain confidentiality for participants. Though some participants experienced logistical issues such as having to ask for directions to the room where the adherence club was being held, most viewed their community location favorably, particularly in terms of protecting confidentiality and easy access to the venue, as described below:

[At the club venue] There is a school and a crèche [daycare]; so everyone is minding their own business. We use the same gate [as everyone else coming to the multi-purpose venue] in different buildings, so I don’t think there is anything... there is [not] any disadvantage there. –Female, age 40, community-based club, returned to clinic-based SOC for viral rebound

For all community-based club participants, attending a club near to where they live was a clear benefit, as described by a female participant, age 39, retained in club-based care: “We



don't have to travel with transport or whatever; we can just walk to get our treatment.” However, many clinic-based club participants, and some community-based club participants mentioned that clinic-based clubs might be more beneficial compared to a community-based club because of direct access to healthcare providers for other services. As described by the following participant, community-based clubs potentially remove the ability of participants to address other existing or emergent health needs separate from their routine HIV care, because they are not delivered at the clinic where this breadth of services is available.

“Maybe at the clinic it's even much better...I don't know; it's much better because if you have a problem you can maybe speak to a nurse and then you can be helped [at the] same time.” –Female, age 34, community club, returned to clinic-based SOC for pregnancy.

## Discussion

Adherence clubs were a highly acceptable intervention among a group of people living with HIV who had achieved viral suppression on ART following initiation of care at a busy primary care clinic in northern Johannesburg, South Africa. Club participants found that club attendance promoted social support and engendered positive peer-to-peer relationships. They rated the quality of care delivery highly and reported that clubs were convenient and saved time in comparison to standard ART care, though logistical concerns associated with less flexibility around the timing of club visits were also prominent. These findings were consistent across both quantitative and qualitative methodologies.

Although participants from Witkoppen Clinic in Johannesburg, South Africa in both clinic and community-based clubs rated all aspects of adherence club-based care highly favorably, our results suggest that clinic-based clubs may be slightly better perceived. Based on quantitative survey results, community-based club participants were less likely to recommend their model of club care to a friend as compared to clinic-based club participants (aPR 0.92). Furthermore, qualitative interview participants noted that receiving other health care services was more convenient for those attending club care at the clinic, and that stigma may be more prominent at community-based clubs. HIV-related stigma is an important determinant of retention in care [25, 26]. Patients experiencing stigma may be more likely to skip medication doses, miss scheduled medication pickups or clinical consultation appointments, or disengage from care entirely [27–29]. Interventions, such as adherence clubs, that seek to maintain or increase retention in care of a group of patients that are already adherent (as evidenced by viral suppression) must be carefully designed so as not to introduce stigma and consequently inadvertently reduce adherence or retention in care. Additional research targeted specifically at further understanding the nuances of stigma in adherence clubs and other differentiated HIV care models will be helpful in refining the success of such interventions.

Our findings considerably extend the limited evidence base on the acceptability of adherence clubs. In a study from Kenya, where clinic-based adherence clubs were introduced for both ART as well as other chronic diseases (e.g. diabetes and hypertension), patients also reported that adherence clubs saved them time, afforded them peer support and provided

valuable health information. In addition, patients and health care workers reported that treating HIV as a chronic condition reduced HIV related stigma among patients [17]. Likewise, patients attending clinic-based adherence clubs in a rural district in South Africa had higher satisfaction with care compared to patients receiving routine clinic-based care, particularly in regard to waiting time [22]. A study among post-partum women attending community-based adherence clubs in Cape Town, South Africa found similarly high acceptability with regards to convenience, peer support and educational opportunities [9]. This study did not identify any concerns related specifically to location of the adherence clubs within the community.

Similar to the design of the Kenyan study, the South African DOH recommends the implementation of “chronic care clubs” where patients living with diabetes, hypertension or HIV can receive care [12]. Although this may be convenient from the health systems perspective, and potentially could reduce HIV-associated club stigma by “anonymizing” an individual’s HIV status as well as the purpose of the clubs, our data suggest this model may erode some specific benefits associated with an ART only adherence club. Participants in our study spoke frequently in the qualitative interviews of the importance of peer support around HIV-related issues such as HIV disclosure, ART adherence and ART side effects, with many saying they not only felt “free” to talk about these issues with their HIV positive peers, but that it provided additional motivation for adherence. This freedom may not hold when clubs care for patients with a range of chronic conditions. Indeed, findings from the study in Kenya suggested that health care workers were more supportive than patients about integration of HIV and non-communicable disease patients in the same club [17]. On the contrary, such chronic care clubs may create social cohesion on the shared experience of a chronic condition, and thus may provide additional support to participants. Post-implementation research around the acceptability of such “chronic care clubs” with a focus on disease-related stigma will be important to understand the impact of this model.

Our study had several limitations. Firstly, the quantitative questionnaire was administered to participants retained in club-based care at their annual medical visit, 1 year following enrollment into the trial. Participants who were lost to follow up or were returned to clinic-based SOC in the first year were excluded. This may have biased the findings to be more favorable towards adherence club-based care. To counter this limitation the qualitative work purposively sampled participants who were returned to clinic-based SOC to ensure representation of their perspectives. Secondly, these findings represent the experience at a single primary care clinic within an urban setting in South Africa, and thus may not be generalizable to other settings. However, as South Africa and other sub-Saharan African countries adopt or scale up the adherence club model, the themes from the qualitative findings may be useful in planning and implementing clubs. Finally, although our finding of generally high acceptability of adherence clubs echoes findings from previous studies [9, 17, 19, 22], we found little variability in the responses to our quantitative survey questions, and the tool utilized has not been validated. Future studies should consider approaches such as stated preference methods to interrogate patient preferences for adherence clubs and other health system interventions [30]. The large sample and concurrent triangulation mixed methods approach were study strengths.

In conclusion, adherence clubs are well perceived and a highly acceptable form of differentiated care for stable ART patients. The setting of the clubs is important however, with clinic-based clubs preferred above community-based clubs, potentially for reasons of stigma and access to additional health care services. Careful assessment of patient perceptions of community-based care programs is therefore important and necessary to advance our understanding of the complex and diverse consequences of transferring successful clinic-based interventions to a community-based setting.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1**  
Demographic and clinical characteristics of the quantitative and qualitative analysis participants

Characteristic	Quantitative analysis			Qualitative analysis		
	Community-based club arm (n = 277)	Clinic-based club arm (n = 291)	Community-based club arm (n = 19)	Clinic-based club arm (n = 17)		
Female sex, n (%)	179 (67)	186 (65)	15 (79)	10 (59)		
Age, median (IQR)	38 (32–44)	38 (33–43)	36 (24–41)	41 (33–47)		
Age category						
18–29 years, n (%)	32 (12)	27 (13)	2 (11)	2 (13)		
30–44 years, n (%)	169 (64)	189 (66)	14 (74)	7 (44)		
45+ years, n (%)	65 (24)	60 (21)	3 (16)	7 (44)		
Unemployed, n (%)	58 (22)	42 (15)	2 (11)	3 (19)		
On FDC, n (%)	238 (89)	253 (88)	16 (84)	14 (88)		
Hypertensive, n (%)	18 (7)	19 (7)	0 (0)	2 (13)		
Baseline CD4 (IQR)	467 (335–654)	537 (398–705)	516 (318–784)	428 (274–656)		
CD4 category						
< 350, n (%)	75 (28)	55 (19)	6 (32)	7 (44)		
350–499, n (%)	67 (25)	69 (24)	3 (16)	3 (19)		
500, n (%)	123 (47)	162 (57)	10 (53)	6 (38)		

ART antiretroviral treatment, FDC fixed dose combination antiretroviral treatment, IQR interquartile range

Table 2

## Findings from the quantitative acceptability questionnaire

Question text	Community-based club Rated favorably n (%)	Clinic-based club	p-value
What are your feelings about the following things about adherence clubs...			
1 Location where club is held	262 (99)	283 (99)	0.633
2 Convenience for you to travel to the location	238 (89)	257 (90)	0.929
3 Length of club visits	246 (92)	269 (94)	0.493
4 Day of week the club is held	259 (97)	280 (98)	0.912
5 Time of day the club is held	248 (94)	277 (97)	0.120
6 Size of the club	235 (89)	249 (87)	0.760
7 How often the club meets	255 (96)	269 (94)	0.385
8 How do you rate the medical care received	258 (97)	275 (96)	0.528
9 How do you rate the counselling received	257 (97)	273 (95)	0.477
10 How do you rate the health education received	253 (95)	265 (93)	0.342
11 Club rules	258 (97)	280 (98)	0.524
Question text			
Do you have any of the following worries about participating in adherence clubs...			
12 Level of individual attention received	261 (98)	284 (99)	0.360
13 How often you see the nurse	257 (97)	283 (100)	0.099
14 Group members sharing information about your HIV status with others	255 (96)	280 (98)	0.242
15 Group members sharing any other information about you with others	251 (95)	275 (96)	0.418
16 Someone learning about your HIV status because of the club location	253 (95)	275 (96)	0.689
Question text			
For community-based club arm participants only: Do you have any of the following concerns about the place where your club is held...			
17 Club is not held in a health care setting	262 (97)	–	
18 Club is in a place where I could run into people I know	258 (95)	–	
19 Club is in an area that I don't feel safe travelling to	264 (98)	–	
20 I don't want staff at the place where the club is held to know why I'm there	263 (98)	–	

For questions 1–11, see the questionnaire in the Supplemental Material, where responses coded as “rated favorably” are highlighted

Table 3

Association of individual-level demographic and clinical characteristics with outcome of recommending one's own club type to a friend

Characteristic	Bivariate robust Poisson regression model		Multivariate robust Poisson regression model <sup>†</sup>	
	PR (95% CI)	p value	aPR (95% CI)	p value
Club type				
Clinic-based	REF			
Community-based	0.92 (0.87–0.97)	0.004	0.92 (0.88–0.97)	0.003
Gender				
Female	REF			
Male	1.0 (0.97–1.1)	0.321	1.0 (0.97–1.1)	0.361
Employment status				
Employed	REF			
Unemployed	1.0 (0.93–1.1)	0.983	1.0 (0.93–1.1)	0.791
Age category				
18–29 years, n (%)	REF			
30–44 years, n (%)	0.99 (0.91–1.1)	0.772	0.99 (0.90–1.1)	0.829
45 years, n (%)	1.0 (0.93–1.1)	0.727	1.0 (0.92–1.1)	0.692
CD4 category				
< 350 cells/mm <sup>3</sup>	REF			
350–499 cells/mm <sup>3</sup>	1.0 (0.95–1.1)	0.693	1.0 (0.9–1.1)	0.820
500 cells/mm <sup>3</sup>	1.0 (0.97–1.1)	0.328	1.0 (0.97–1.1)	0.356

PR prevalence ratio. aPR adjusted prevalence ratio

<sup>†</sup>Chi square goodness of fit test = 49.9, p 1.00