



Clients starting ART with advanced HIV disease in South Africa: characteristics and six-month outcomes

BACKGROUND

- ◆ In South Africa and neighboring countries, **20-30%** of individuals who come to clinics to start or re-start HIV treatment present with advanced HIV disease (AHD), defined by CD4 counts <200cells/μL or WHO stage 3/4 conditions.
- ◆ AHD is associated with **higher mortality** and more **opportunistic infections**, and AHD patients require more clinical care.
- ◆ Clinical guidelines do not adequately address the unique needs of AHD clients, particularly early in treatment.

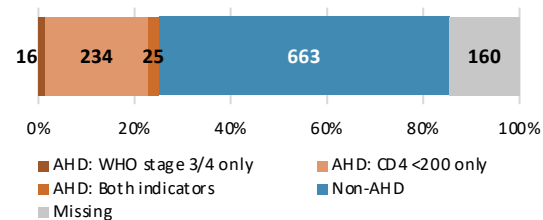
METHODS

- ◆ From September 2022 to June 2023, we surveyed a sequential sample of clients starting or re-starting ART or on ART for ≤6 months at 18 primary healthcare facilities in three provinces in South Africa (Gauteng, Mpumalanga, and KwaZulu-Natal; mix of rural/urban).
- ◆ We collected demographic and social characteristics, HIV care history, and service delivery preferences and expectations and linked survey responses to routine medical record data from Tier.Net.
- ◆ Participants were classified as having AHD if they had a **CD4 count ≤200 cells/mm** or **were in WHO Stage 3 or 4** at ART initiation.
- ◆ Primary outcomes were 6-month retention and viral load (VL) suppression, categorized as suppressed (<50 copies/mL), low-level viremia (50–1,000 copies/mL), or unsuppressed (≥1,000 copies/mL) at the routine 6-month VL test.

RESULTS

- ◆ We enrolled 1,098 survey participants (Figure 1).
- ◆ Of these, 938 (85%) had a baseline CD4 count and/or WHO stage recorded at initiation.
- ◆ 275/938 (29%) had AHD, **with a median CD4 count of 108.**

FIGURE 1. SCREENING OUTCOMES FOR ENROLLED SAMPLE



- ◆ There were no differences between the two groups in education, employment, or access to food or money (Table 1).
- ◆ Participants with AHD were more likely to be male (44% vs.21%) and older.
- ◆ Clients with AHD were more likely to **seek care due to illness** than non-AHD clients (63% vs. 33%) (Table 1).
- ◆ Participants with AHD were less likely to have started ART on the same day as HIV diagnosis.
- ◆ Participants with AHD had higher rates of TB testing (76% vs. 67%).

TABLE 1. DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF ANALYTIC SAMPLE

| Characteristic | Response | Non-AHD (N=663) | AHD (N=275) |
|--|---------------------------------|-----------------|-------------|
| Age | Median age (IQR) | 31 (25-38) | 38 (31-44) |
| Sex | Female | 523 (79) | 154 (56) |
| Marital status | Married-living with partner | 199 (30) | 90 (33) |
| | Married-not living with partner | 337 (51) | 104 (38) |
| | Single | 127 (19) | 81 (29) |
| Education | Primary or less | 238 (36) | 109 (40) |
| | Secondary | 324 (49) | 129 (47) |
| | Post-secondary | 101 (15) | 37 (13) |
| Employment | Formal employment | 132 (20) | 72 (26) |
| | Informal employment | 126 (19) | 61 (22) |
| | Unemployed | 347 (52) | 130 (47) |
| | Student/trainee | 58 (9) | 12 (4) |
| Food scarcity | Sometimes/often | 157 (24) | 64 (23) |
| Access to R100 (\$6) for healthcare if needed | Difficult/very difficult | 374 (56) | 145 (53) |
| Tested HIV positive before most recent ART initiation | Yes | 226 (34) | 90 (33) |
| Previously on treatment | Yes | 73 (11) | 30 (11) |
| Reason for testing most recently | Recommended by provider | 162 (24) | 43 (16) |
| | Known exposure or risk | 88 (13) | 22 (8) |
| | Ill health | 249 (38) | 172 (63) |
| | Pregnancy/antenatal | 41 (6) | 10 (4) |
| | Self-initiated/voluntary | 103 (16) | 26 (9) |
| | Other | 20 (3) | 2 (1) |
| Time before treatment initiation after HIV-positive test | Same day | 541 (82) | 176 (64) |
| | Within a week | 78 (12) | 73 (27) |
| | Month plus | 40 (6) | 22 (8) |
| | Unsure | 4 (1) | 4 (1) |
| Tested for TB at ART initiation | Yes | 442 (67) | 208 (76) |
| Ever diagnosed with TB | Yes | 26 (4) | 39 (14) |

FIGURE 2. HIV CARE HISTORY

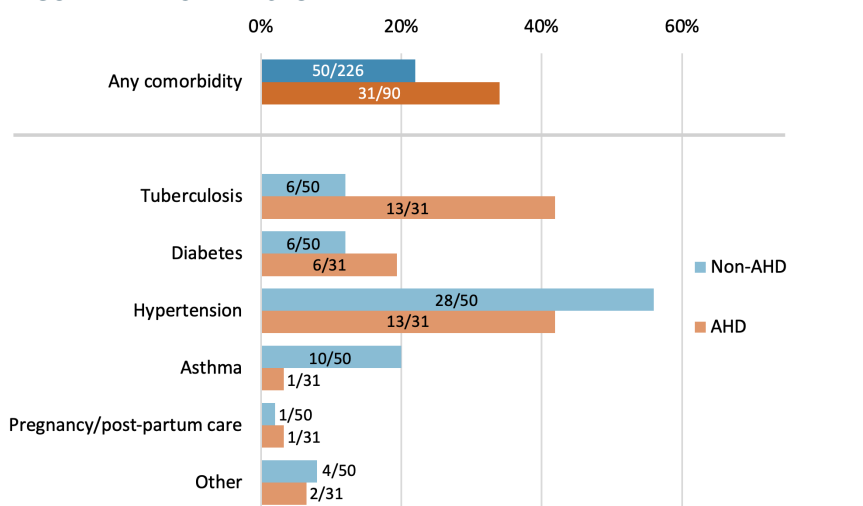
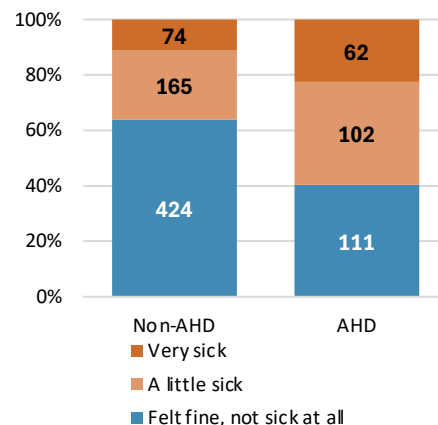


FIGURE 3. PHYSICAL CONDITION AT THE TIME OF HIV TESTING



- ◆ 34% of clients with AHD self-reported having any comorbidity, compared to 22% of those without AHD (Figure 2).
- ◆ Clients with AHD more often reported that they felt sick than those without AHD (Figure 3.)
- ◆ Participants with AHD had higher rates of TB disease (42% vs.12%)

TABLE 3. TREATMENT OUTCOMES

| Characteristic | Non-AHD (n=663) | AHD (n=275) | Risk difference (95% CI) | Relative risk (95% CI) |
|---|-----------------|-------------|--------------------------|------------------------|
| Retention in care by 6 months on ART | | | | |
| Continuously in care | 466 (70%) | 208 (75%) | 5% (-1 to 12%) | 1.08 (0.99-1.17) |
| Transferred to another facility | 31 (5%) | 11 (5%) | 0% (-3 to 2%) | 0.86 (0.44-1.68) |
| Interrupted treatment and returned to care (cyclical) | 89 (13%) | 33 (12%) | -1% (-6 to 3%) | 0.89 (0.62-1.30) |
| Disengaged from care | 148 (22%) | 53 (19%) | -3% (-9 to 3%) | 0.86 (0.65-1.14) |
| <i>Disengaged immediately after initiation</i> | 21 (3%) | 3 (1%) | -2% (-4 to 0%) | 0.34 (0.10-1.15) |
| <i>Disengaged from care 1-6 months after initiation</i> | 37 (6%) | 14 (5%) | 0% (-4 to 3%) | 0.91 (0.50-1.66) |
| <i>Deceased</i> | 1 (0.2%) | 3 (1%) | - | - |
| Outcome unknown | 18 (3%) | 3 (1%) | -2% (-3 to 0%) | 0.40 (0.12-1.35) |
| VL suppression by 6 months on ART (copies/mL) | | | | |
| If VL result observed at 6 months: | 64% | 72% | | |
| <i>Suppressed (<50 copies/mL)</i> | 314 (47%) | 121 (43%) | -4% (-10 to 4%) | 0.93 (0.80-1.09) |
| <i>Low-level viraemia (50-999)</i> | 70 (11%) | 66 (24%) | 13% (8 to 19%) | 2.27 (1.67-3.09) |
| <i>Unsuppressed (≥1000 copies/mL)</i> | 43 (6%) | 11 (4%) | -2% (-5 to 0%) | 0.62 (0.32-1.18) |
| VL result not observed at 6 months | 236 (36%) | 77 (28%) | -8% (-14 to -2%) | 0.78 (0.63-0.96) |

- ◆ At 6 months post-initiation, clients with AHD had similar or slightly better rates of retention in care than did those without AHD (75% v 70%) (Table 3).
- ◆ There were no differences in the proportions interrupting treatment and returning to care.
- ◆ Few deaths were observed in either group, though AHD clients had slightly higher mortality.
- ◆ AHD clients were more likely to have a 6-month VL test result recorded (72% v 64%).
- ◆ Among those who did have VL results recorded, clients with AHD were more than twice as likely to experience low-level viremia (24% vs. 11%) and slightly less likely to achieve viral suppression (43% vs. 47%).

CONCLUSIONS

- ◆ Advanced HIV disease at treatment initiation or re-initiation is not associated with disengagement from care but was associated with less viral suppression and more low-level viremia at 6 months.
- ◆ Clients presenting with AHD had a median CD4 count of just 108 cells/m³ and were much more likely to seek care due to current illness than were those without AHD.