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POPULATION-PREVALENCES AND CORRELATES OF ADVANCED HIV DISEASE AMONG HIGH-RISK POPULATIONS IN MALAWI

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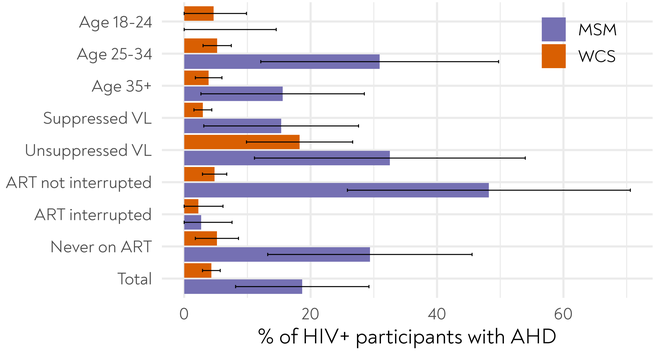
BACKGROUND

High-risk populations bear a disproportionate burden of HIV in sub-Saharan Africa, yet data on advanced HIV disease (AHD) in these groups are scarce. We assessed AHD prevalence and correlates among men who have sex with men (MSM), people who inject drugs (PWID) and women in commercial sex (WCS) in Malawi.

METHODS

- From Sep-Dec 2024, we conducted respondent-driven sampling surveys among MSM and PWID in four and three major cities, respectively, and among WCS in 10 districts.
- Eligibility criteria included (risk behavior recalled from the past 6 months):
  - MSM: male, aged 18+ years, having anal or oral sex with a man
  - PWID: adult, aged 18+ years, injecting drugs for non-medical purposes
  - WCS: female, aged 18+ years, exchanging sex for money, goods or services
- Eligible, consenting participants completed an in-person interview and HIV rapid test on site. HIV viral load (VL) and CD4 testing were done among HIV-positive samples.
- Binomial regression models adjusted for demographics and accounted for unequal selection probabilities. We used 'surveyglm' in R to obtain overall weighted estimates and relative risks (RR) of AHD using 95% confidence intervals (CIs).

Advanced HIV disease prevalence among MSM and WCS with HIV in Malawi, by age and treatment-related factors



Note: PWID not included in figure due to small sample size

Advanced HIV disease was high, particularly among men who have sex with men. HIV treatment and adherence were important explanatory factors. These are the first population measures of AHD among these high-risk populations and showed higher prevalences than the general population.

Table 1: WCS: Prevalence of AHD among HIV+ participants, and correlates of AHD

Characteristic	n with AHD/ N HIV+	% with AHD (95% CI)	Adjusted Risk Ratio (95% CI)[1]
Age			
18-24	7/332	4.7 (0.0-9.7)	0.94 (0.002-0.11)
25-34	51/899	5.2 (2.9-7.4)	1.41 (0.46-4.37)
35+	22/558	3.8 (1.7-5.9)	[ref]
Education			
No education	4/105	2.7 (0.0-11.5)	[ref]
Primary	53/1306	3.8 (2.1-5.6)	3.71 (0.63-22.07)
Secondary or higher	23/376	5.0 (1.7-8.3)	4.51 (0.44-46.41)
Number of days in the past four weeks a household member went to sleep hungry because of lack of food			
Never	31/461	7.1 (3.2-11.0)	[ref]
Rarely (1-2 days)	27/620	4.6 (1.7-7.6)	0.77 (0.40-1.50)
Sometimes or often (3+ days)	22/700	2.0 (0.0-4.1)	0.40 (0.18-0.86)
Viral load			
Suppressed	40/1493	3.0 (1.5-4.4)	[ref]
Unsuppressed	39/236	18.2 (9.7-26.7)	6.07 (2.33-15.78)
Ever stopped ARVs for two weeks or more			
Yes	11/227	2.4 (0.0-6.4)	0.50 (0.26-0.95)
No	52/1244	4.8 (2.9-6.7)	[ref]

[1]Adjusted risk ratios were computed using a quasibinomial model including all variables in the table plus time since beginning treatment, adjusted for the complex survey design.

Table 2: MSM: Prevalence of AHD among HIV+ participants, and correlates of AHD

Characteristic	n with AHD/ N HIV+	% with AHD (95% CI)	Adjusted Risk Ratio (95% CI)[1]
Age			
18-34	8/61	22.7 (8.0-37.4)	0.23 (0.04-1.28)
35+	10/95	15.2 (3.2-27.3)	[ref]
Education			
No education/ Primary	4/55	9.1 (0.0-21.3)	[ref]
Secondary	11/72	26.8 (11.3-42.2)	0.00 (0.00-0.00)
Higher than secondary	3/29	5.4 (0.0-21.4)	0.35 (0.06-2.00)
Viral load			
Suppressed	9/117	15.4 (2.9-27.9)	[ref]
Unsuppressed	9/27	32.6 (11.0-54.1)	16.9 (2.59-110.9)
Ever stopped ARVs for two weeks or more			
Yes	2/14	48.1 (25.8-70.5)	20.0 (3.59-111.0)
No	2/61	2.8 (0.0-7.6)	[ref]

[1]Adjusted risk ratios were computed using a quasibinomial model including all variables in the table plus time since beginning treatment, adjusted for the complex survey design.

RESULTS

- Among 1,716 MSM, 523 PWID and 4,161 WCS participants, HIV prevalence was 8.8%, 11.8%, and 44.9% respectively, compared to general population rates of 3.9% for women and 9.6% for men (MPHIA 2020-2021).
- Median CD4 count with interquartile range (IQR) was lowest among MSM [416, IQR 254, 556], followed by PWID [523, IQR 402, 667] and WCS [646, IQR 468, 850].
- AHD prevalence was 18.7%, 6.9% and 4.3%, among MSM, PWID and WCS, respectively.
- In adjusted models, among WCS, AHD risk was greater among those with unsuppressed viral load (uVL) vs. suppressed VL [18.2% vs. 3.0%, RR 6.1, (2.3-15.8); p<0.001] (Table 1).
- Among MSM, AHD risk was greater among those with uVL vs. suppressed VL [32.6% vs. 15.4%, RR 16.9, (2.59-110.9); p=0.004] and those who experienced treatment interruption (TxInt) vs. those who did not [48.1% vs. 2.8%, RR 20.0, (3.59-111.0); p=0.001] (Table 2).
- A small PWID sample limited model reliability.

CONCLUSIONS

As the first population measure of AHD among high-risk populations in SSA and Malawi, this analysis shows high AHD prevalences, namely among MSM and PWID, with TxInt and uVL as potential key factors among MSM and uVL for WCS. These findings underscore the importance of monitoring to identify TxInt and continued access to VL monitoring for these populations.

ADDITIONAL KEY INFORMATION

Relevant definitions:

- AHD: <200 CD4 cells/mm^3
- Unsuppressed VL (uVL): ≥1000 copies/mL
- Treatment interruption (TxInt): ever stopping HIV treatment for 2+ weeks
- Respondent-driven sampling: starting with a small number of 'seeds', each participant is asked to recruit other members of the population they know, forming connected recruitment chains.

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