U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

Factors Associated with Detectable Viral Load among PLHIV in Serodiscordant Partnerships in Tanzania

Abbas Ismail[1], Damian Damian[1], Emilian Karugendo[2], Fahima M. Issa[3], Deogratias Kakiziba[4], Ahmed Khatib[5], Lilian S. Shija[1], Rebecca L. Laws[6], George S. Mgomella[1], Alexander Kailembo[1], Mahesh Swaminathan[1], Sarah E. Porter[1]

(1) Division of Global HIV and TB, U.S. Centers for Disease Control and Prevention (CDC), Dar es Salaam, Tanzania, (2) National Bureau of Statistics, Dodoma, Tanzania, (3) Zanzibar AIDS Commission, (4) ICAP at Columbia University, Dar es Salaam, Tanzania, (5) Office of the Chief Government Statistician, Zanzibar, Tanzania, (6) Division of Global HIV and TB, U.S. Centers for Disease Control and Prevention, Atlanta, United States

BACKGROUND

- People living with HIV (PLHIV) with undetectable HIV viral load (VL) cannot sexually transmit HIV to others. Forthcoming clinical guidelines in Tanzania will define HIV VL suppression as <50 copies/mL.
- PLHIV with detectable VL (DVL) in serodiscordant (SD) marriages or cohabiting relationships (SD-PLHIV) are at increased risk of transmitting HIV to their partner without HIV.
- We used data from the Tanzania HIV Impact Survey (THIS) 2022-2023 to report prevalence of and factors associated with DVL among SD-PLHIV.

METHODS

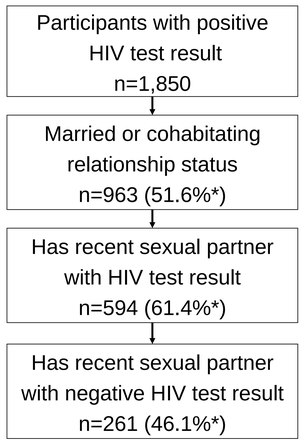
- THIS 2022-2023 was a nationally representative household survey with a multistage sampling design conducted in Tanzania between November 2022 and March 2023.
- Consenting participants aged ≥15 years (n=35,957) responded to a questionnaire including items on relationship status, sociodemographic data, and HIV risk behaviors. Participants also provided venous blood for point-of-care and laboratory-based biomarker testing.
- HIV infection was determined though a national two-test rapid algorithm with ELISA laboratory confirmation. HIV-1 VL quantification was conducted among participants with confirmed HIV infection, with DVL defined as HIV VL ≥50 copies/mL.
- We defined SD-PLHIV as a participant with a confirmed HIV infection, self-reported relationship status as “married or cohabiting”, and whose most recent sexual partner had a recorded negative HIV test during the survey.
- We reported prevalence of DVL among SD-PLHIV as weighted population estimates (%) with 95% confidence internals (CI).
- We conducted multivariable binary logistic regression to assess correlates of DVL among SD-PLHIV, reporting associations as adjusted odds ratios (aOR) with 95% CIs.
- Analyses employed jackknife survey weights and accounted for complex survey design.

Over 2 in 5 (42.8%) PLHIV in serodiscordant partnerships had **detectable HIV viral load,** with highest prevalence occurring in PLHIV aged 15-34 years.

RESULTS

- Among 1,850 PLHIV identified in THIS 2022-2023, 51.6% (48.6-54.7%) were married or cohabiting. Of those, 61.4% (57.0-65.5%) had a recent sexual partner with survey HIV test result, and 46.1% (39.7-52.7%) of those had a negative HIV test result. (Figure).
- Of 261 SD-PLHIV analyzed, median (IQR) age was 39 years (31-48 years), and 51.3% (42.9-59.5%) were female.
- Overall, 42.8% (35.2-50.9%) of SD-PLHIV had DVL. Proportion of SD-PLHIV with DVL was lower in older age groups, and odds of DVL among SD-PLHIV aged 15-34 years were nearly 3 times as high as those aged ≥50 years (aOR 2.96 [1.14-7.68]) (Table).
- Sex, education, and residence were not associated with DVL.

Figure. THIS 2022-2023 participants included in analysis



*Percentages are weighted population estimates

RESULTS

Table. Prevalence and factors associated with detectable HIV viral load (≥50 copies/mL) among PLHIV aged ≥15 years in serodiscordant partnerships – Tanzania, THIS 2022-2023.

	n	HIV viral load ≥50 copies/mL % (95% CI)	aOR[2] (95% CI)
SD-PLHIV[1]	261	42.8% (35.2-50.9%)	--
Sex			
Female	139	37.5% (28.5-47.4%)	Ref
Male	122	48.0% (36.4-59.8%)	1.76 (0.88-3.53)
Age (Years)			
15-34	67	51.2% (38.4-63.9%)	2.96 (1.14-7.68)
35-49	121	43.3% (31.8-55.5%)	1.59 (0.72-3.54)
50+	73	33.0% (21.5-47.1%)	Ref
Highest Education Level			
Not attended	44	43.6% (27.5-61.2%)	0.91 (0.24-3.50)
Pre- or Primary School	179	43.4% (34.7-52.4%)	1.19 (0.41-3.41)
Secondary or above	38	39.8% (20.1-63.5%)	Ref
Residence			
Urban	83	41.3% (27.3-56.9%)	Ref
Rural	178	43.8% (35.5-52.5%)	1.28 (0.56-2.91)
Wealth Quintile			
Lowest	46	58.4% (42.4-72.8%)	Ref
Second	69	37.8% (23.6-54.4%)	0.39 (0.14-1.08)
Middle	73	31.8% (21.1-44.9%)	0.29 (0.11-0.79)
Fourth	48	48.0% (28.3-68.4%)	0.68 (0.23-2.04)
Highest	25	42.3% (21.9-65.7%)	0.56 (0.15-2.10)

[1]SD-PLHIV: Serodiscordant people living with HIV, defined as PLHIV in married or cohabitating relationship whose most recent sexual partner had a recorded HIV-negative test result.
[2]Adjusted odds ratio (aOR) is adjusted for other factors shown in table.

CONCLUSIONS

We observed high prevalence of DVL among SD-PLHIV in our analysis. Programs focused on improving awareness of HIV prevention interventions for serodiscordant married or cohabiting partners and tailored interventions focusing on PLHIV 15-34 years have the potential to improve HIV VL suppression among SD-PLHIV.

ACKNOLWEDGMENTS

THIS 2022-2023 was led by the Government of Tanzania with funding from the U.S. President’s Emergency Plan for AIDS Relief (PEFPAR) and technical assistance from ICAP at Columbia University and the U.S. Centers for Disease Control and Prevention (CDC). We acknowledge and appreciate the contributions of field staff, survey communities, and study participants who made this work possible.

CONTACT

Abbas Ismail Kihame | U.S. Centers for Disease Control and Prevention | Division of Global HIV and TB, Tanzania | akihame@cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the U.S. Centers for Disease Control and Prevention.