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High Prevalence of Advanced HIV Disease in Sub-Saharan Africa

an Analysis of Population-based Household Surveys

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Rationale and Methods

Rationale

- AHD is associated with a significantly increased likelihood of hospitalization and death
- Estimates of the burden of AHD in sub-Saharan Africa are still scarce.
- Advanced HIV Disease (AHD) among adults is defined as a CD4 count <200 cells/mm^3 or a World Health Organization HIV clinical stage 3 or 4.
- **Aim of the study:**
  - To estimate the **prevalence of AHD** in sub-Saharan Africa, by different demographic factors and the HIV testing and treatment cascade
  - To assess the **number of people with AHD** in sub-Saharan Africa

Methods

- All publicly available datasets from **12 Population-based HIV Impact Assessment (PHIA)** with CD4 cell count testing
- PHIA surveys are **nationally representative**, cross-sectional, household surveys that use a 2-stage, stratified cluster sample design*
- **Outcome: proportion of CD4 count <200 cells/mm^3** disaggregated by demographic & socioeconomic factors and the testing and treatment cascade
- Estimation of the **number of people with AHD:** Combination of gender-disaggregated AHD proportions across the testing and treatment cascade with the corresponding **2022 UNAIDS HIV estimates**

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* Population-based HIV Impact Assessment (PHIA) Data Use Manual. New York, NY. April 2021.

Methods

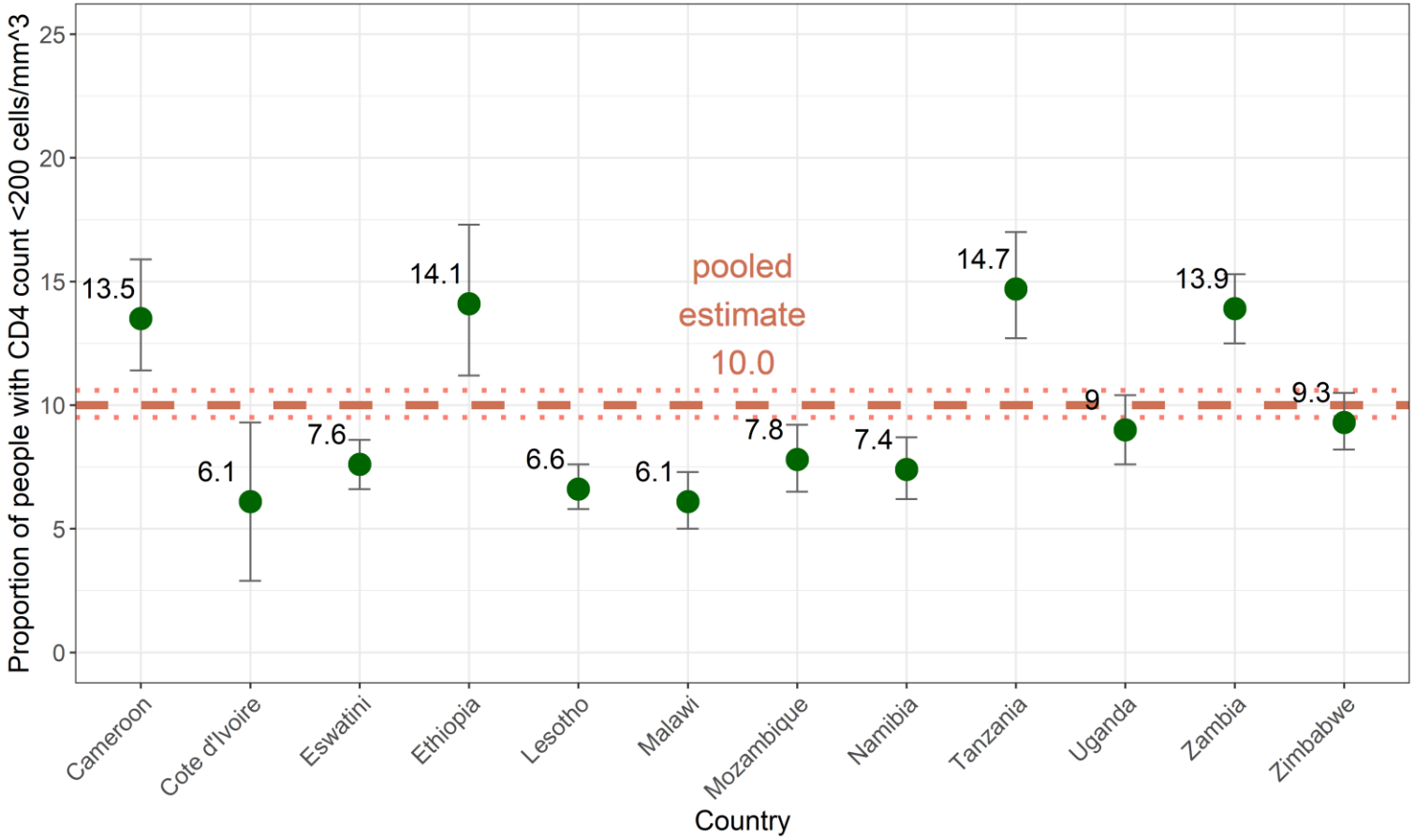
Country	PHIA 1 (year)	PHIA 2 (year)
Cameroon	**2017**	-
Côte d'Ivoire	**2017**	-
Eswatini	**2016**	-
Ethiopia	**2017**	-
Lesotho	~~2015~~	**2020**
Malawi	~~2015~~	**2020**
Mozambique	-	**2021**
Namibia	**2017**	-
Tanzania	**2016**	-
Uganda	**2016**	-
Zambia	**2016**	-
Zimbabwe	~~2015~~	**2020**

Results

Baseline characteristics across PHIA surveys

		Number	Weighted Proportion (%)
Overall		24,621	
HIV cascade	Not aware of HIV status	4609	26.5
	Aware but not on ART	1093	4.1
	On ART but not virally suppressed	1805	7.7
	Virally suppressed	17,001	61.6
Gender	Female	16,936	64.5
	Male	7685	35.5
Residence	Rural	14,649	55.2
	Urban	9972	44.8

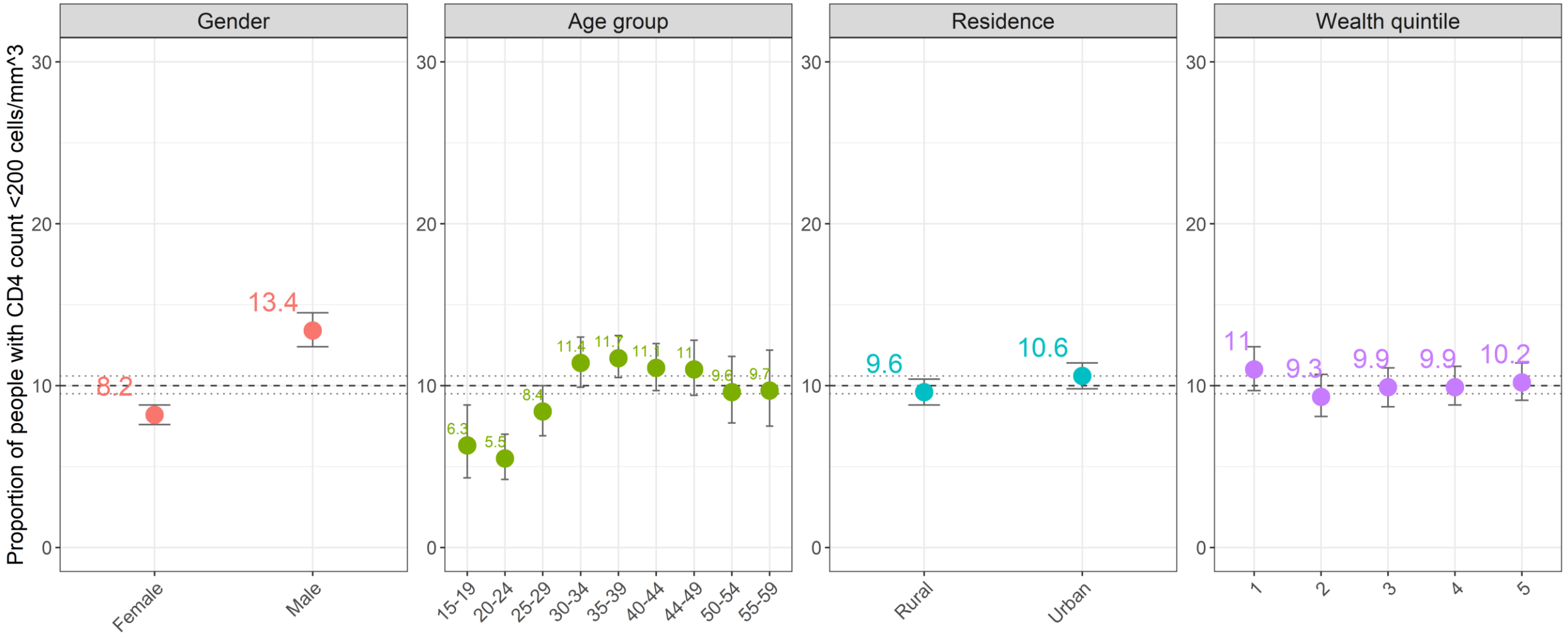
Pooled and country-specific AHD prevalence



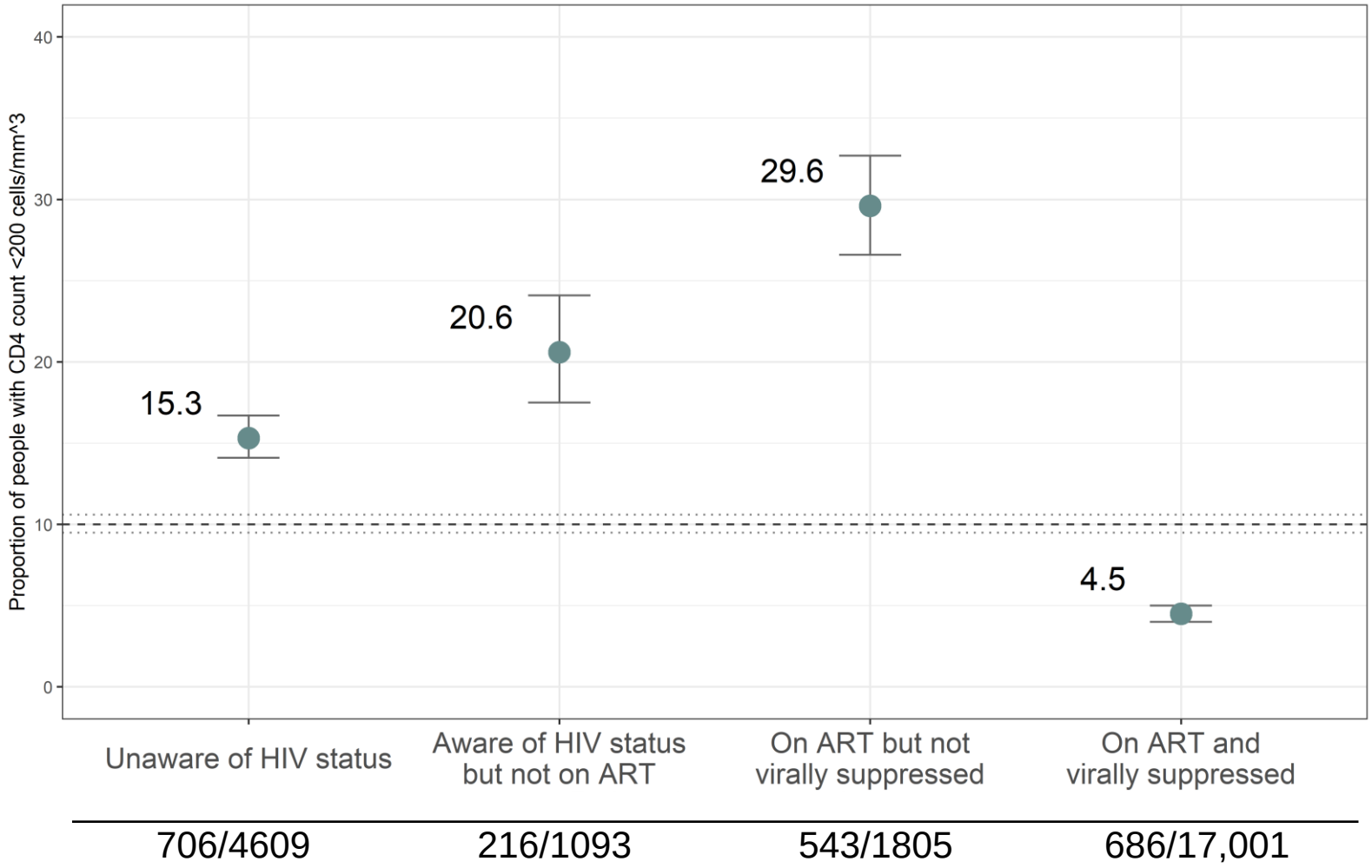
CD4 category	Number (n=24,621)	Weighted %
<200	2172	10.0
200 to 349	4263	19.0
350 to 499	5544	23.5
≥500	12642	47.4

	Median	IQR
CD4 count	483	324–676

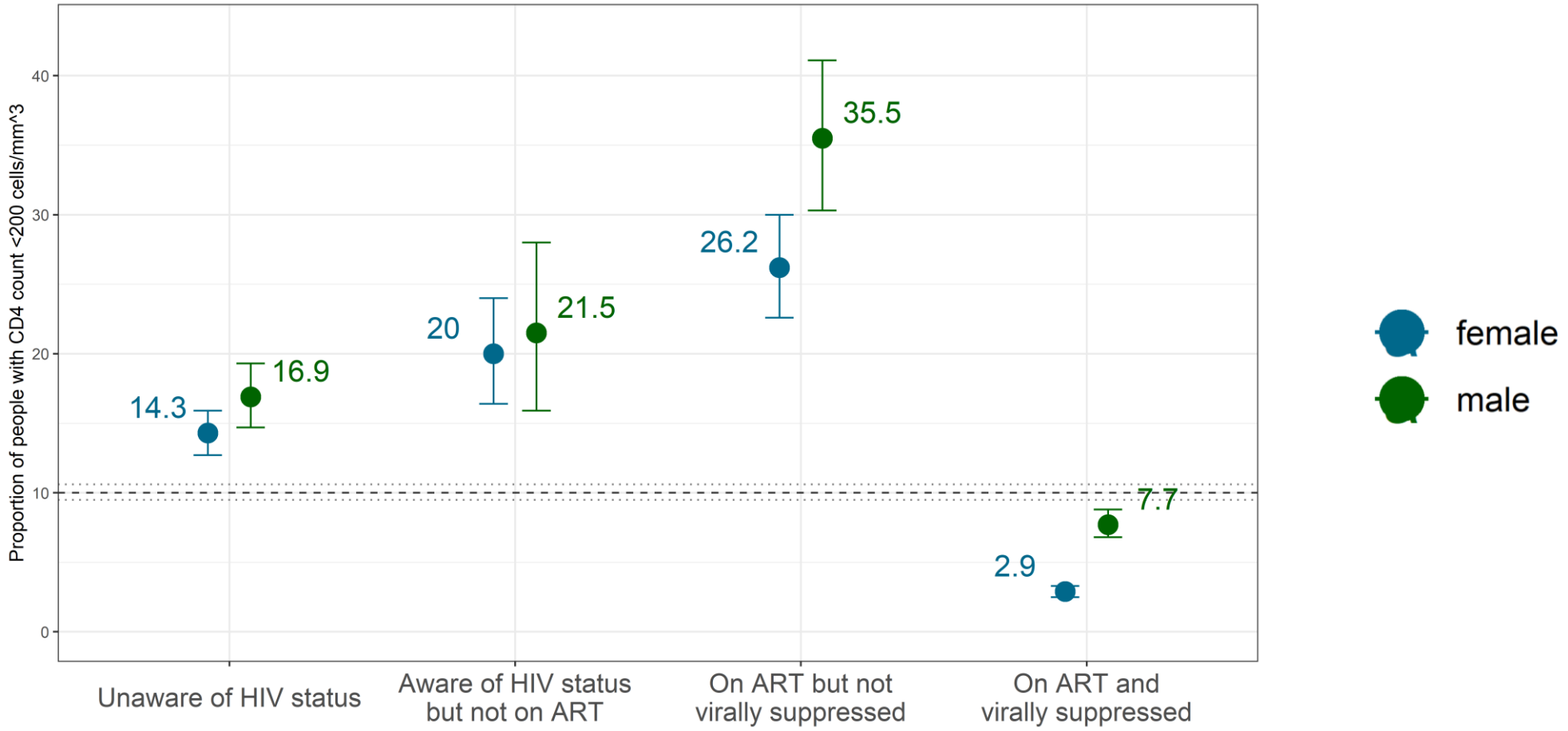
AHD prevalence by demographic factors, residence & wealth



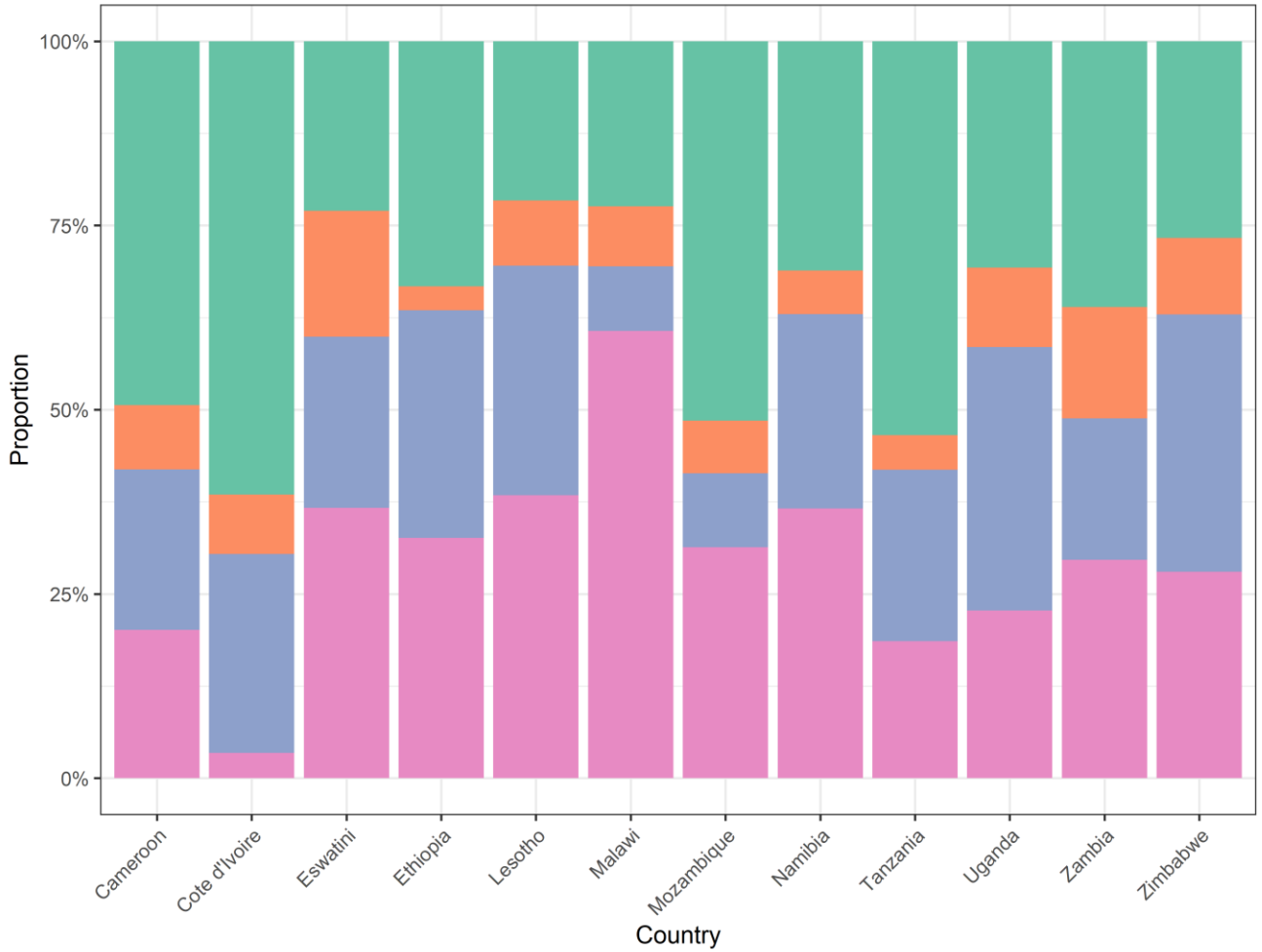
AHD by the HIV testing and treatment cascade



AHD by the HIV testing and treatment cascade, by gender



Distribution of AHD in surveys by treatment cascade



Disaggregation of **all people with AHD**	n = **2151**	Weighted **%***
Not aware of HIV status	706	32.5
Aware of status but not on ART	216	9.9
On ART but not virally suppressed	543	25.0
Virally suppressed	686	31.6

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* Weighted proportions across the 12 PHIA surveys

Estimated number of people with AHD in sub-Saharan Africa

	Number of people living with HIV (millions)	Number of people with AHD (millions)	Proportion virally suppressed among people with AHD (%)
All	24.2	1.9 [1.59–2.22]	44 [37–52]
Females	15.6	0.93 [0.78–1.08]	39 [33–46]
Males	8.6	0.98 [0.82–1.15]	49 [41–58]

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Conclusion

Conclusion

- **AHD burden:** Significant AHD prevalence and number of people with AHD in sub-Saharan Africa.
- **Underestimation of AHD in household surveys** (e.g. missed hospitalised patients), leading to conservative estimates.
- **Disparities:** Considerably higher AHD prevalence among men.
- **Treatment:** Two thirds with AHD are on ART, nearly half are virally suppressed; mere ART initiation and sustained treatment are insufficient.
- **Testing and linkage importance:** Timely CD4 testing and linkage to care is crucial for AHD diagnosis and treatment.
- **Implementing WHO AHD package of care** is crucial for better patient outcomes, and reduced mortality.

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