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HIV SELF-TESTING AFRICA

# Too much of a good thing?

## Prevalence and determinants of frequent and very frequent HIV testing in Zambia and Malawi

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### BACKGROUND

As countries approach the “First 90” of UN 90-90-90 targets, HIV testing will become increasingly less efficient, and excessive use of HIV testing among low risk populations is an increasing concern. Here, we investigate frequent testing in general populations in Malawi and Zambia during 2 community-based HIV self-testing (CB-HIVST) trials.

### METHODS

In Malawi and Zambia, 22 and 12 clinic catchment areas, respectively, were randomized to receive 12 months of CB-HIVST or standard clinic-based services, followed by endline household surveys. Surveys were conducted in October 2017-February 2018, with self-reported HIV prevalence of 16.0% in Malawi and 6.8% in Zambia. The following definitions were based on self-reported HIV testing in the past 12 months: recent testers (1-2 tests), frequent testers (3-4 tests), and very frequent testers (5+ tests). Multinomial logistic regression with standard errors adjusted for clustering was used to investigate associations between study arm, sex, and other socio-demographic and health-related indicators with frequent and very frequent testing. Effect modification by country and sex was also assessed. Missing data were imputed using chained multiple imputation models.

### RESULTS

Of 10,368 respondents with complete testing data, 6,273 tested for HIV at least once in the past 12 months. These included 1,111 (17.7%) frequent testers and 179 (2.8%) very frequent testers (table). Frequent testing was associated with the highest household wealth tertile (adjusted OR [AOR]: 1.47; 95% confidence interval [CI]: 1.09, 1.99), and with HIVST use (AOR men: 2.95; 95%CI: 2.37, 3.69; women: 1.88; 95%CI: 1.47, 2.40; interaction p=0.001).

Very frequent testing was associated with highest wealth tertile (AOR: 2.60; 95%CI: 1.40, 4.85), HIVST (AOR: 2.23; 95%CI: 1.29, 3.85 – no gender difference), and marginally associated with fair or poor self-rated health (AOR: 1.35; 95%CI: 0.98, 1.86) (Figure).

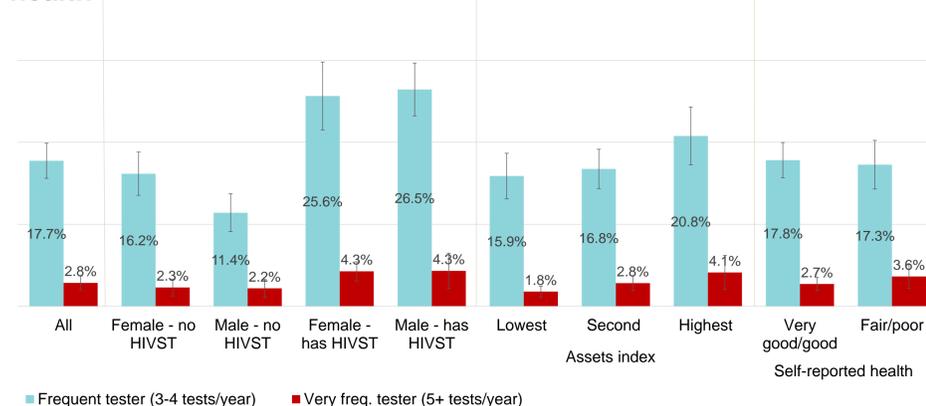
There was weak evidence of an association between frequent and very frequent testing and sexual behaviour (AOR for very frequent testing condom users compared to persons with no partner: 1.53, 95% CI: 0.92, 2.55) (data not shown).

**Table. Less frequent, frequent, and very frequent testing by respondent characteristics**

	Less frequent testers (1-2 tests/yr., N=4,983)		Frequent testers (3-4 tests/yr., N=1,111)		Very frequent testers (5+ tests/yr., N=179)		Total	
	n	Col. %	n	Col. %	n	Col. %	n	Col. %
<b>Socio-demographics and self-testing</b>								
Age								
16-19 yrs.	699	14	118	10.6	23	12.8	840	13.4
20-24 yrs.	1,020	20.5	265	23.9	56	31.3	1,341	21.4
25-29 yrs.	821	16.5	212	19.1	34	19	1,067	17
30-39 yrs.	1,150	23.1	293	26.4	41	22.9	1,484	23.7
40 yrs. and older	1,293	25.9	223	20.1	25	14	1,541	24.6
Male gender								
Self-tested in prior 12 months	1,885	37.8	365	32.9	58	32.4	2,308	36.8
Educational attainment								
No formal schooling	487	9.8	105	9.5	18	10.1	610	9.7
Primary incomplete or complete	2,859	57.4	674	60.7	104	58.1	3,637	58
Secondary or higher	1,635	32.8	332	29.9	57	31.8	2,024	32.3
<b>Health and reproductive history</b>								
Has a biological child								
Self-reported health fair or poor	4,009	80.5	966	86.9	159	88.8	5,134	81.8
Sexual behaviour with steady partners								
No partner in past 3 months	849	17.1	167	15	32	17.9	1,048	16.7
Condom always	1,727	37.8	326	31.8	39	22.5	2,092	36.2
Condom sometimes or never	1,556	34	308	30	55	31.8	1,919	33.2
<b>Household attributes</b>								
Assets index								
Lowest tertile	1,290	28.2	392	38.2	79	45.7	1,761	30.5
Second tertile	1,727	37.8	326	31.8	39	22.5	2,092	36.2
Highest tertile	1,556	34	308	30	55	31.8	1,919	33.2
<b>Other</b>								
Intervention arm								
Country	2,592	52	678	61	120	67	3,390	54
Malawi	2,390	48	699	62.9	106	59.2	3,195	50.9
Zambia	2,593	52	412	37.1	73	40.8	3,078	49.1

Missing data in the following covariates: educational attainment (n=2), self-testing status (n=230), self-reported health (n=10), sexual behaviour (n=137), assets tertile (n=819).

**Figure. Predicted probabilities of frequent or very frequent HIV testing by gender, HIVST use, household assets, and self-reported health**



Results mutually adjusted, and also adjusted for age, educational attainment, having a biological child, country, and study arm. Standard errors adjusted for clustered study design using the vce(cluster) of mlogit in Stata 15.0. Missing data imputed using chained imputation models.

### CONCLUSION

Frequent testing was common and associated with greater likelihood of HIVST uptake from both men and women, and with wealthier households. Very frequent testing was a potential marker of ill-health, being associated with poorer self-rated health. Risk behaviours were not fully measured in this study, so it is not clear whether testers were testing in response to perceived risk or for other reasons.

WHO guidelines for high HIV prevalence settings encourage annual testing for adults, and testing up to 2-3 times per year for key populations depending on risk. As HIV testing and HIV self-testing scale-up, efforts are needed to optimize implementation by minimizing inefficient testing while promoting HIV testing for those at increased risk of infection.

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