

Appendices to “Understanding the pathways leading to socioeconomic inequalities in HIV testing uptake in 18 sub-Saharan African countries: a mediation analysis”

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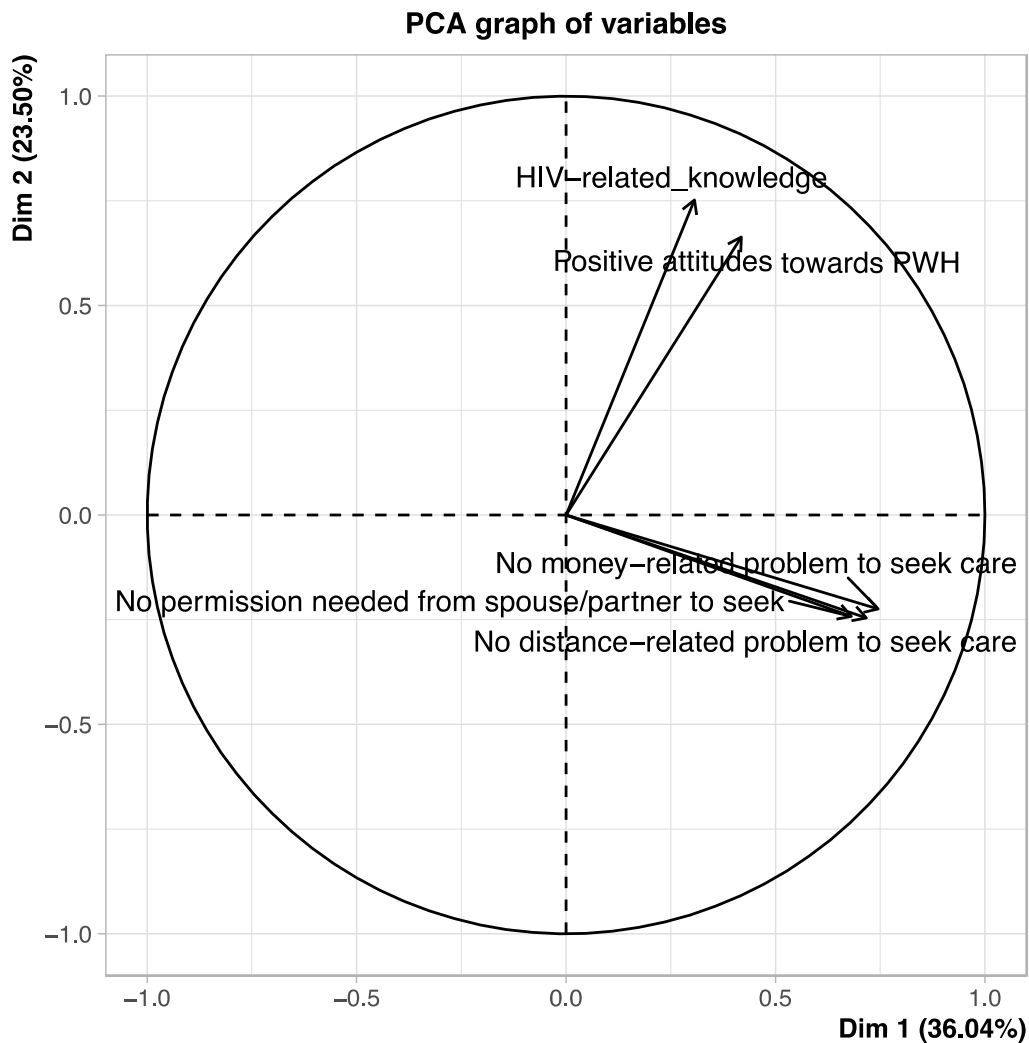


Figure S1. Categorization of the mediators. Principal Component Analysis of the five mediators among female participants in 18 sub-Saharan African countries. The external mediator *reporting no/ single difficulty in seeking care* was not included in the PCA since it is the combination of the three external mediators. PWH, people with HIV.

Among women, the PCA show the internal mediators were highly correlated. We found the same result across the external mediators. Hence, we categorized these mediators under these two groups.

Among men, internal mediators were also highly correlated (Pearson chi-square p-value: < 2.2e-16).

Table S1. Construction and coding of the mediators.

Variables	Description	Coding	DHS Questions
Mediators			
Internal mediators			
HIV-related knowledge	Based on a set of 7 questions related to HIV transmission and prevention defined as a binary variable reflecting comprehensive knowledge about HIV	1 = answering correctly to 7 questions 0 = answering at least one incorrectly	<ol style="list-style-type: none"> Can people reduce their chance of getting HIV by having just one uninfected sex partner who has no other sex partners? Can people get HIV from mosquito bites? Can people reduce their chance of getting HIV by using a condom every time they have sex? Can people get HIV by sharing food with a person who has HIV? Can HIV be transmitted from a mother to her baby: <ol style="list-style-type: none"> During delivery? During pregnancy? By breastfeeding?
Positive attitudes towards PWH	Based on a set of 2 questions about attitudes towards PLHIV defined as a binary variable showing positive attitudes towards PWH. The set of two questions differ by country depending on the availability of the variables.	1 = answering favorably to 2 questions 0 = answering at least one unfavorably	<ol style="list-style-type: none"> Would want to keep secret that a family member got infected with HIV Willing to care for a family member with the AIDS virus Female teacher who has the AIDS virus but is not sick should be allowed to continue teaching
External mediators (among females only except in Tanzania)			Many different factors can prevent women from getting medical advice or treatment for themselves. When you are sick and want to get medical advice or treatment, is each of the following a big problem or not a big problem:
Reporting no distance-related problem to seek care	Self-report of distance to facility as not a problem/ not a big problem.	1 = yes 0 = no	1. The distance to the health facility?
Reporting no money-related problem to seek care	Self-report of getting money for medical advice or treatment as not a problem/ not a big problem.	1 = yes 0 = no	2. Getting money needed for advice or treatment?
No permission needed from spouse/partner to seek a doctor	Self-report of getting permission to see a doctor as not a problem/ not a big problem.	1 = yes 0 = no	3. Getting permission to go to the doctor?
No/ single difficulty in seeking care	Only one or no difficulty in access. Combined variable of the 3 external mediators above.	1 = yes 0 = no	Combined variable of the 3 external mediators above.

Abbreviation: PWH, people with HIV.

Text S1. Formulas based on Valeri and Vanderweele to estimate the Control Direct Effect (CDE), Natural Indirect Effect (NIE), Total Effect (TE) and Proportion mediated (PM).

$$E\{Y = 1|a, m, c\} = \theta_0 + \theta_1 a + \theta_2 m + \theta_3 a m + \theta' 4c \text{ (Outcome model)}$$

$$E\{M = 1|a, c\} = \beta_0 + \beta_1 a + \beta' 2c \text{ (Mediator model)}$$

where, Y = outcome, a = exposure, m = mediator, c = confounder.

$$PR^{CDE} = \exp \{(\theta_1 + \theta_3 m)(a - a^*)\}, m=1$$

$$PR^{NIE} = \frac{\{1 + \exp(\beta_0 + \beta_1 a^* + \beta' 2c)\}\{1 + \exp(\theta_2 + \theta_3 a + \beta_0 + \beta_1 a + \beta' 2c)\}}{\{1 + \exp(\beta_0 + \beta_1 a + \beta' 2c)\}\{1 + \exp(\theta_2 + \theta_3 a + \beta_0 + \beta_1 a^* + \beta' 2c)\}}$$

where $a = 1$, $a^* = 0$, $m = 1$.

$$TE = NIE \times CDE \text{ (when } Y \text{ is binary)}$$

$$PM = CDE \times (NIE - 1) / (CDE \times NIE - 1)$$

Valeri L, VanderWeele TJ. “Mediation analysis allowing for exposure–mediator interactions and causal interpretation: Theoretical assumptions and implementation with SAS and SPSS macros”: Correction to Valeri and VanderWeele (2013). *Psychol Methods*. 2013 Dec;18(4):474–474.

Table S2. Complete data per country and gender after excluding the missing data.

Country	Year	Female			Male		
		N	n [†]	%	N	n [†]	%
BFA (Burkina Faso)	2010	17,087	16,693	98	7,307	7,185	98
CIV (Côte d'Ivoire)	2011-12	10,060	9,213	92	5,135	4,985	97
CMR (Cameroon)	2018	14,677	13,147	90	6,978	6,808	98
COD (Congo DR)	2013-14	18,827	17,094	91	8,656	8,284	96
ETH (Ethiopia)	2016	15,683	14,369	92	12,688	12,254	97
GNA (Guinea)	2018	10,874	8,693	80	4,117	3,748	91
KEN (Kenya)	2014	14,741 [§]	14,512	98	12,819	12,772	99.6
LES (Lesotho)	2014	6,621	6,539	99	2,931	2,870	98
LIB (Liberia)	2013	9,239	8,756	95	4,118	3,909	95
MLI (Mali)	2018	10,519	8,406	80	4,618	3,890	84
MWI (Malawi)	2015-16	24,562	24,072	98	7,478	7,409	99
NIG (Niger)	2012	11,160	9,609	86	3,928	3,695	94
RWA (Rwanda)	2014-15	13,497	13,419	99	6,217	6,200	99.7
SEN (Senegal)	2017	16,787	15,758	94	6,977	6,734	97
SLE (Sierra Leone)	2013	16,658	15,433	93	7,262	6,932	95
TNZ (Tanzania)	2011-12	10,967	10,757	98	8,352	8,300	99
ZBW (Zimbabwe)	2015	9,955	9,864	99	8,396	8,341	99
ZMB (Zambia)	2018	13,683	13,370	98	12,132	12,015	99

[†] After excluding missing data.

[§] Long version. All version: 31,079; Short version: 16,338. Kenya DHS 2014 used 2 types of women questionnaires: long version and short version. The Short version is a reduce questionnaires where only few sections were asked to ½ of the households in the sample.

Table S3. Survey and population characteristics, by country and gender.

Western-Central Africa	BFA		CIV		CMR		COD		GNA		LIB		MLI		NIG		SEN		SLE	
	(Burkina Faso)		(Côte d'Ivoire)		(Cameroon)		(Congo DR)		(Guinea)		(Liberia)		(Mali)		(Niger)		(Senegal)		(Sierra Leone)	
	2010		2011-12		2018		2013-14		2018		2013		2018		2012		2017		2013	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
N	17,087	7,307	10,060	5,135	14,677	6,978	18,827	8,656	10,874	4,117	9,239	4,118	10,519	4,618	11,160	3,928	16,787	6,977	16,658	7,262
Response Rate (%) [†]	98	97	93	91	98	98	99	97	99	97	98	95	98	96	95	88	96	91	97	96
Wealth index (%) Poorest	17.50	17.30	17.60	19.10	16.60	15.40	18.60	16.90	18.90	17.30	17.10	18.20	17.50	18.60	18.10	14.80	16.50	16.70	18.50	18.50
Poorer	18.70	19.10	17.30	16.50	18.70	18.40	19.10	18.90	19.70	18.00	17.60	18.30	18.80	19.90	18.80	17.40	17.80	17.50	18.30	18.30
Middle	19.00	18.30	18.20	17.90	20.10	20.80	18.60	20.70	18.90	18.00	19.30	17.70	19.10	18.60	19.70	19.30	19.70	19.80	18.80	18.50
Richer	19.90	18.90	20.80	22.10	21.30	21.00	19.40	20.50	19.80	20.30	22.20	21.00	21.10	20.10	20.60	20.40	21.30	22.80	20.30	18.10
Richest	24.90	26.40	26.20	24.40	23.20	24.30	24.30	23.00	22.70	26.40	23.90	24.90	23.40	22.80	22.80	28.10	24.70	23.20	24.00	26.50
Age in years (%) 15-24	38.80	33.80	39.50	33.90	39.00	38.20	41.20	36.40	40.10	35.90	40.30	38.50	38.00	31.20	34.20	28.00	40.60	39.90	39.40	34.20
25-34	32.50	25.90	34.10	29.40	30.00	25.40	32.70	26.40	30.80	23.00	30.40	30.30	34.40	24.60	37.00	24.80	32.20	25.50	30.80	25.10
35 and above	28.80	40.30	26.40	36.80	31.00	36.50	26.10	37.20	29.10	41.10	29.30	31.20	27.60	44.20	28.80	47.20	27.30	34.60	29.80	40.80
Type of residence (%) Urban	27.10	28.90	51.40	50.30	54.60	55.20	38.40	37.00	37.60	41.90	61.00	58.60	26.30	25.60	18.80	24.60	49.70	53.10	35.60	37.20
Family situation (%) In union	79.40	63.70	62.70	52.70	56.60	47.10	64.20	58.20	71.10	55.10	58.30	53.90	81.40	66.10	88.50	69.80	64.90	43.10	65.50	57.10
Single	17.50	34.20	30.20	42.40	32.30	48.20	26.00	37.50	25.20	43.60	31.00	42.50	16.00	33.10	7.90	28.60	30.30	55.50	28.40	39.30
Widowed/ separated	3.10	2.20	7.10	4.90	11.10	4.80	9.70	4.20	3.70	1.30	10.70	3.70	2.60	0.80	3.60	1.50	4.80	1.40	6.20	3.50

[†] Based on each country's DHS Final Report.

Table S3 (continued). Survey and population characteristics, by country and gender.

Eastern-Southern Africa	ETH		KEN		LES		MWI		RWA		TNZ		ZBW		ZMB	
	(Ethiopia)		(Kenya)		(Lesotho)		(Malawi)		(Rwanda)		(Tanzania)		(Zimbabwe)		(Zambia)	
	2016		2014		2014		2015-16		2014-15		2011-12		2015		2018	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
N	15 683	12 688	31 079	12 819	6 621	2 931	24 562	7 478	13 497	6 217	10 967	8 352	9 955	8 396	13 683	12 132
Response Rate (%) †	95	86	97	90	97	94	98	95	99.5	99.5	96	89	96	92	96	92
Wealth index (%) Poorest	16.80	15.80	15.60	14.10	14.50	14.30	19.30	16.00	19.00	14.60	17.00	16.30	17.10	15.00	17.80	16.50
Poorer	17.90	18.30	17.60	17.70	15.60	18.20	19.10	18.40	19.50	17.80	18.00	18.30	17.00	18.00	17.40	17.90
Middle	19.00	19.30	19.40	19.80	18.80	20.40	18.90	19.80	19.20	20.20	18.00	19.00	17.60	19.30	18.10	20.00
Richer	19.80	21.50	21.10	24.60	24.20	22.50	19.10	20.70	19.50	22.70	20.60	20.90	23.20	22.90	22.00	22.40
Richest	26.50	25.10	26.40	23.90	26.90	24.60	23.70	25.20	22.80	24.70	26.40	25.40	25.10	24.70	24.60	23.30
Age in years (%) 15-24	39.20	35.10	37.20	36.40	41.80	42.70	42.40	43.10	38.70	36.60	39.20	42.30	39.10	41.20	41.90	39.70
25-34	33.80	28.50	34.10	30.30	31.00	25.40	31.00	26.00	33.00	30.20	31.00	26.10	32.90	27.00	30.00	25.60
35 and above	27.00	36.40	28.70	33.30	27.30	31.90	26.50	30.80	28.30	33.20	29.80	31.50	28.00	31.80	28.10	34.70
Type of residence (%) Urban	22.20	19.70	40.80	43.40	36.50	33.80	18.30	18.50	19.50	20.00	27.00	25.60	38.50	36.00	46.60	44.10
Family situation (%) In union	65.20	58.90	59.70	52.70	54.60	40.00	65.70	58.10	51.70	54.20	63.00	53.00	61.80	51.50	55.90	53.00
Single	25.70	38.60	28.90	41.80	33.10	51.50	21.00	38.30	37.80	43.50	25.50	42.30	25.20	43.20	31.20	42.60
Widowed/ separated	9.10	2.50	11.40	5.40	12.40	8.50	13.30	3.50	10.50	2.30	11.50	4.70	13.00	5.30	12.90	4.40

† Based on each country's DHS Final Report.

Table S4. Path from exposure to mediator. Adjusted prevalence ratios of favourable levels of the mediator between the richest and poorest participants while accounting for confounders.

Country	Adjusted PR (95% Confidence Intervals) $P(\text{mediator}) = f(\text{wealth rank}, \text{confounders})$							
	Mediator							
	HIV-related knowledge		Positive attitudes towards PWH		No distance-related problem to seek care	No money-related problem to seek care	No permission needed to seek a doctor	No/single difficulty in seeking care
	Female	Male	Female	Male	Female	Female	Female	Female
BFA	2.04 [1.68;2.46]	2.46 [1.87;3.24]	2.43 [2.05;2.89]	2.98 [2.40;3.71]	1.56 [1.38;1.77]	3.68 [2.95;4.58]	0.93 [0.85;1.01]	1.52 [1.35;1.72]
CIV	5.20 [3.75;7.21]	5.99 [3.92;9.16]	3.18 [2.68;3.76]	4.87 [4.05;5.85]	2.01 [1.72;2.34]	3.99 [3.20;4.98]	1.06 [0.95;1.19]	2.06 [1.75;2.42]
CMR	1.95 [1.66;2.30]	2.36 [1.81;3.09]	1.96 [1.76;2.19]	2.18 [1.85;2.57]	1.89 [1.69;2.11]	4.71 [3.91;5.68]	1.38 [1.24;1.55]	2.06 [1.80;2.37]
COD	2.05 [1.55;2.70]	2.29 [1.56;3.37]	1.93 [1.57;2.37]	1.73 [1.42;2.12]	1.46 [1.27;1.69]	3.20 [2.53;4.03]	1.35 [1.22;1.49]	1.82 [1.56;2.13]
ETH	6.33 [4.83;8.30]	3.36 [2.63;4.30]	4.00 [3.27;4.90]	2.99 [2.45;3.64]	2.46 [2.06;2.94]	3.00 [2.55;3.54]	1.32 [1.20;1.46]	2.07 [1.79;2.39]
GNA	1.82 [1.25;2.65]	1.75 [1.07;2.84]	2.69 [1.71;4.23]	1.49 [0.82;2.72]	2.16 [1.76;2.64]	3.14 [2.50;3.96]	1.25 [1.10;1.42]	2.10 [1.75;2.53]
KEN	2.69 [2.37;3.05]	1.61 [1.39;1.87]	2.04 [1.91;2.18]	1.77 [1.68;1.88]	1.73 [1.63;1.84]	2.33 [2.16;2.50]	1.13 [1.10;1.16]	1.68 [1.59;1.76]
LES	2.14[1.76;2.60]	2.12 [1.42;3.17]	1.34 [1.27;1.42]	1.96 [1.74;2.20]	1.75[1.58;1.93]	1.45 [1.34;1.56]	1.03 [1.01;1.05]	1.32 [1.25;1.40]
LIB	3.93[1.42;10.89]	2.58 [1.68;3.95]	2.76 [2.20;3.45]	2.69 [2.06;3.51]	2.94 [2.31;3.73]	1.39 [1.20;1.61]	1.02 [0.98;1.07]	1.61 [1.41;1.84]

Abbreviations: PR, prevalence ratio; P, probability, f, function of; PWH, people with HIV; NA, Not available.

Bold fonts indicate the PR is statistically significant and grey colours indicate it is not statistically significant.

Refer to Table S2 for full country names.

Table S4 (continued). Path from exposure to mediator. Adjusted prevalence ratios of favourable levels of the mediator between the richest and poorest participants while accounting for confounders.

Adjusted PR (95% Confidence Intervals) † <i>P (mediator) = f(wealth rank, confounders)</i>								
Country	Mediator							
	HIV-related knowledge		Positive attitudes towards PWH		No distance-related problem to seek care	No money-related problem to seek care	No permission needed to seek a doctor	No/single difficulty in seeking care
	Female	Male	Female	Male	Female	Female	Female	Female
MLI	5.06 [3.34;7.66]	3.67 [2.31;5.84]	10.15 [7.34;14.04]	8.63 [6.30;11.83]	2.16 [1.88;2.48]	2.68 [2.28;3.14]	1.45 [1.30;1.61]	2.17 [1.91;2.47]
MWI	1.56 [1.43;1.70]	1.60 [1.36;1.89]	1.31 [1.27;1.35]	1.21 [1.16;1.26]	1.92 [1.74;2.12]	2.37 [2.20;2.55]	1.15 [1.12;1.19]	1.87 [1.76;2.00]
NIG	6.42 [4.11;10.03]	3.69 [2.01;6.77]	5.50 [3.61;8.36]	6.49 [4.09;10.29]	1.45 [1.25;1.69]	2.16 [1.77;2.64]	0.92 [0.83;1.03]	1.35 [1.16;1.57]
RWA	1.08 [0.98;1.18]	1.10 [0.92;1.32]	1.23 [1.19;1.28]	1.19 [1.14;1.26]	1.26 [1.19;1.33]	4.70 [4.21;5.25]	1.03 [1.02;1.05]	1.38 [1.31;1.44]
SEN	3.58 [2.89;4.44]	3.88 [2.79;5.39]	6.90 [5.90;8.06]	6.42 [5.14;8.01]	2.01 [1.84;2.20]	3.25 [2.97;3.56]	1.11 [1.08;1.14]	1.88 [1.75;2.02]
SLE	2.11 [1.52;2.94]	1.72 [0.95;3.10]	1.48 [1.19;1.83]	1.76 [1.23;2.52]	1.89 [1.61;2.23]	2.74 [1.94;3.85]	1.16 [1.05;1.27]	1.94 [1.61;2.32]
TNZ	1.68 [1.45;1.94]	1.34 [1.13;1.60]	2.25 [2.05;2.47]	2.11 [1.93;2.31]	NA	NA	NA	NA
ZBW	1.61 [1.40;1.85]	1.70 [1.42;2.05]	1.32 [1.23;1.42]	1.34 [1.24;1.44]	1.99 [1.76;2.25]	3.02 [2.67;3.41]	1.09 [1.06;1.13]	1.79 [1.64;1.95]
ZMB	2.33 [2.01;2.69]	2.22 [1.86;2.66]	1.91 [1.78;2.06]	1.59 [1.49;1.70]	1.69 [1.51;1.90]	1.43 [1.33;1.53]	1.06 [1.03;1.08]	1.35 [1.26;1.43]

Abbreviations: PR, prevalence ratio; P, probability, f, function of; PWH, people with HIV; NA, Not available.

Bold fonts indicate the PR is statistically significant and grey colours indicate it is not statistically significant.

Refer to Table S2 for full country names.

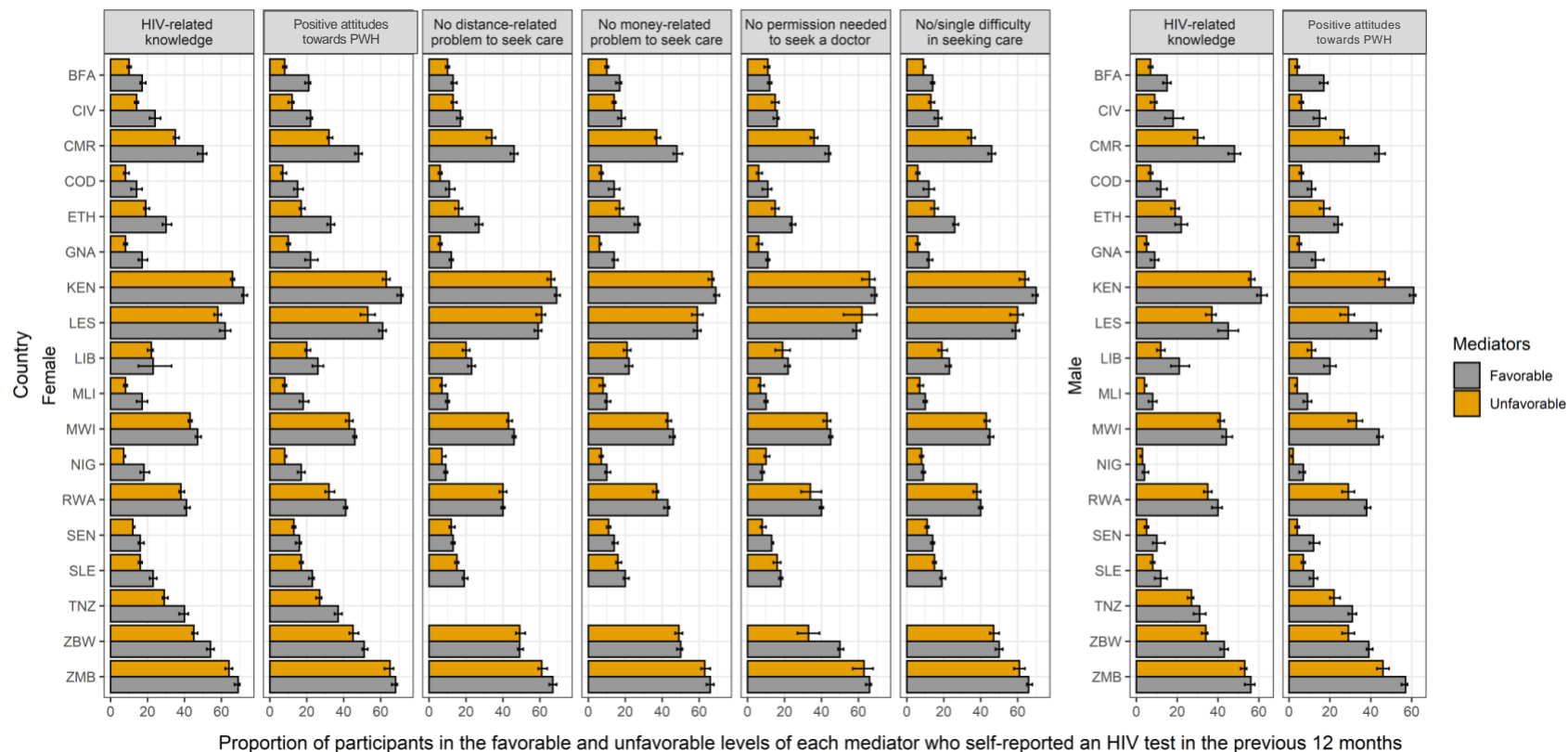


Figure S2. Path from mediator to outcome. Bivariate analysis of HIV testing uptake and mediators. Proportion of HIV testing uptake among the favorable and unfavorable levels of the mediator in 18 sub-Saharan African countries, stratified by gender. Refer to Table S2 for full country names. PWH, people with HIV.

Table S5. Path from mediator to outcome. Adjusted prevalence ratios of recent HIV testing between favourable and unfavourable levels of the mediators, while accounting for confounders.

Adjusted PR (95% Confidence Intervals) <i>P (recent HIV testing) = f(mediator, confounders)</i>							
Country	Mediators	HIV-related knowledge	Positive attitudes towards PWH	No distance-related problem to seek care	No money-related problem to seek care	No permission needed to seek a doctor	No/ single difficulty in seeking care
BFA	Female	1.42 [1.29;1.57]	2.09 [1.88;2.32]	1.10 [0.98;1.23]	1.36 [1.23;1.51]	1.07 [0.94;1.22]	1.20 [1.08;1.35]
	Male	1.56 [1.35;1.82]	2.90 [2.41;3.49]	NA	NA	NA	NA
CIV	Female	1.51 [1.35;1.69]	1.58 [1.40;1.77]	1.03 [0.91;1.16]	1.18 [1.06;1.32]	0.97 [0.84;1.11]	1.05 [0.94;1.18]
	Male	1.82 [1.50;2.21]	2.27 [1.86;2.76]	NA	NA	NA	NA
CMR	Female	1.29 [1.24;1.35]	1.33 [1.26;1.41]	1.20 [1.13;1.27]	1.19 [1.13;1.25]	1.18 [1.11;1.25]	1.17 [1.11;1.24]
	Male	1.46 [1.36;1.57]	1.55 [1.41;1.70]	NA	NA	NA	NA
COD	Female	1.38 [1.21;1.57]	1.79 [1.58;2.02]	1.17 [1.01;1.35]	1.54 [1.35;1.75]	1.34 [1.15;1.56]	1.32 [1.14;1.54]
	Male	1.52 [1.25;1.86]	1.67 [1.37;2.05]	NA	NA	NA	NA
ETH	Female	1.21 [1.13;1.29]	1.54 [1.42;1.65]	1.16 [1.07;1.26]	1.20 [1.12;1.28]	1.14 [1.05;1.23]	1.19 [1.10;1.28]
	Male	1.13 [1.05;1.22]	1.37 [1.25;1.50]	NA	NA	NA	NA
GNA	Female	1.56 [1.35;1.80]	2.07 [1.73;2.46]	1.25 [1.05;1.49]	1.76 [1.52;2.04]	1.35 [1.10;1.65]	1.41 [1.18;1.69]
	Male	1.36 [1.00;1.84]	2.33 [1.75;3.09]	NA	NA	NA	NA
KEN	Female	1.10 [1.08;1.13]	1.19 [1.15;1.22]	1.09 [1.06;1.13]	1.04 [1.02;1.07]	1.06 [1.01;1.12]	1.13 [1.09;1.17]
	Male	1.12 [1.08;1.16]	1.35 [1.29;1.42]	NA	NA	NA	NA
LES	Female	1.04 [1.00;1.09]	1.11 [1.05;1.18]	1.02 [0.98;1.07]	1.01 [0.97;1.06]	0.95 [0.86;1.05]	1.01 [0.96;1.06]
	Male	1.13 [1.02;1.26]	1.45 [1.29;1.62]	NA	NA	NA	NA
LIB	Female	1.18 [0.90;1.55]	1.29 [1.18;1.42]	1.12 [1.01;1.23]	1.10 [1.00;1.21]	1.27 [1.09;1.48]	1.14 [1.03;1.26]
	Male	1.51 [1.25;1.82]	1.61 [1.36;1.91]	NA	NA	NA	NA

Abbreviations: PR, prevalence ratio; P, probability, f, function of; PWH, people with HIV; NA, Not available.

Bold fonts indicate the PR is statistically significant and grey colours indicate it is not statistically significant.

Refer to Table S2 for full country names.

Table S5 (continued). Path from mediator to outcome. Adjusted prevalence ratios of recent HIV testing between favourable and unfavourable levels of the mediators, while accounting for confounders.

Adjusted PR (95% Confidence Intervals) <i>P (recent HIV testing) = f(mediator, confounders)</i>							
Country	Mediators	HIV-related knowledge	Positive attitudes towards PWH	No distance-related problem to seek care	No money-related problem to seek care	No permission needed to seek a doctor	No/ single difficulty to in seeking care
MLI	Female	1.63 [1.34;1.98]	1.91 [1.60;2.28]	1.14 [0.93;1.41]	1.21 [1.01;1.45]	1.14 [0.89;1.47]	1.19 [0.97;1.46]
	Male	1.33 [1.01;1.75]	1.58 [1.12;2.22]	NA	NA	NA	NA
MWI	Female	1.05 [1.01;1.08]	1.05 [1.01;1.09]	1.02 [0.99;1.05]	1.04 [1.01;1.07]	1.04 [0.99;1.08]	1.02 [0.99;1.05]
	Male	1.04 [0.98;1.10]	1.17 [1.08;1.27]	NA	NA	NA	NA
NIG	Female	1.36 [1.17;1.58]	1.24 [1.10;1.40]	1.02 [0.89;1.17]	1.18 [1.04;1.33]	0.91 [0.80;1.05]	1.02 [0.89;1.15]
	Male	1.61 [1.10;2.37]	1.86 [1.29;2.68]	NA	NA	NA	NA
RWA	Female	1.06 [1.02;1.11]	1.22 [1.14;1.30]	0.99 [0.93;1.04]	1.13 [1.08;1.17]	1.15 [0.99;1.35]	1.04 [0.98;1.11]
	Male	1.10 [1.03;1.18]	1.28 [1.15;1.43]	NA	NA	NA	NA
SEN	Female	1.26 [1.14;1.40]	1.42 [1.30;1.55]	1.05 [0.94;1.17]	1.20 [1.10;1.31]	1.40 [1.16;1.69]	1.17 [1.04;1.31]
	Male	1.48 [1.15;1.89]	2.23 [1.81;2.75]	NA	NA	NA	NA
SLE	Female	1.30 [1.18;1.42]	1.38 [1.27;1.51]	1.12 [1.02;1.24]	1.20 [1.10;1.31]	1.09 [0.97;1.21]	1.12 [1.02;1.22]
	Male	1.39 [1.12;1.72]	1.67 [1.35;2.07]	NA	NA	NA	NA
TNZ	Female	1.34 [1.26;1.42]	1.31 [1.23;1.39]	NA	NA	NA	NA
	Male	1.14 [1.05;1.24]	1.28 [1.17;1.39]	NA	NA	NA	NA
ZBW	Female	1.09 [1.05;1.14]	1.10 [1.05;1.16]	1.04 [0.99;1.09]	1.07 [1.02;1.11]	1.43 [1.25;1.63]	1.09 [1.04;1.15]
	Male	1.15 [1.09;1.22]	1.18 [1.09;1.27]	NA	NA	NA	NA
ZMB	Female	1.04 [1.01;1.07]	1.06 [1.03;1.09]	1.07 [1.03;1.11]	1.02 [0.98;1.06]	1.00 [0.93;1.08]	1.05 [1.00;1.09]
	Male	1.03 [0.99;1.07]	1.15 [1.10;1.20]	NA	NA	NA	NA

Abbreviations: PR, prevalence ratio; P, probability, f, function of; PWH, people with HIV; NA, Not available.

Bold fonts indicate the PR is statistically significant and grey colours indicate it is not statistically significant.

Refer to Table S2 for full country names.

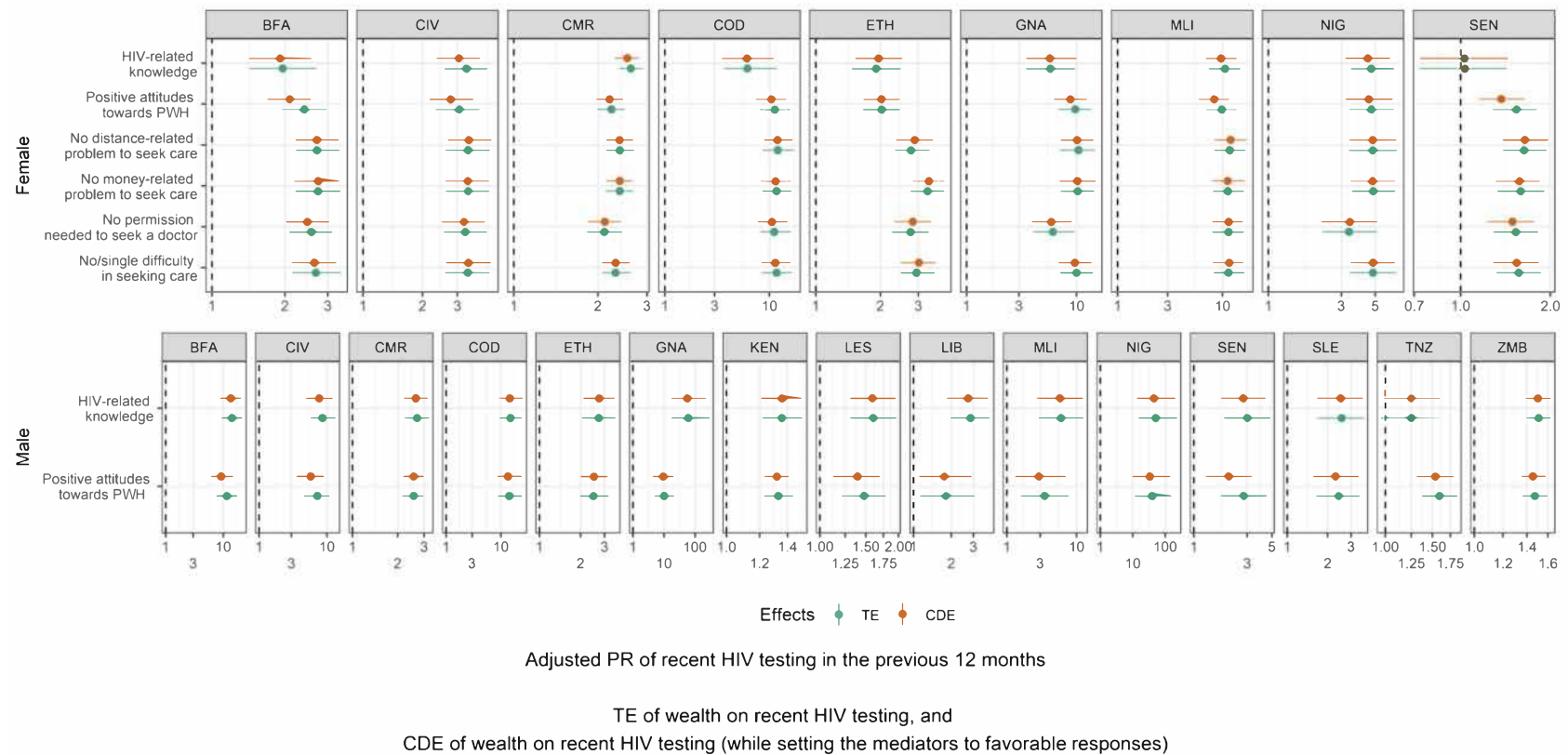


Figure S3. Forest plot of the Total Effect and Controlled Direct Effect by mediator and gender. Refer to Table S2 for full country names. PWH, people with HIV; PR, Prevalence Ratio; TE, Total Effect; CDE, Controlled Direct Effect.

Table S6. Total effect of wealth on recent HIV testing - adjusted prevalence ratios of recent HIV testing between the richest and poorest participants among women (excluding those with recent birth in the past year), while accounting for confounders.

Adjusted PR (95% Confidence Interval)	
<i>P (recent HIV testing) = f(wealth rank, confounders)</i>	
ISO Code	Female
BFA	5.27 (3.46 – 8.00)
CIV	4.82 (3.34 – 6.98)
CMR	2.99 (2.56 – 3.49)
COD	10.31 (5.69 – 18.70)
ETH	3.70 (2.85 – 4.79)
GNA	13.82 (7.83 – 24.37)
KEN	1.42(1.33 – 1.51)
LES	0.91 (0.82 – 1.02)
LIB	1.44 (1.10 – 1.91)
MLI	11.67 (6.72 – 20.27)
MWI	1.26 (1.16 – 1.35)
NIG	13.12 (6.46 – 26.65)
RWA	1.15 (1.03 – 1.29)
SEN	1.73 (1.33 – 2.23)
SLE	1.47 (1.07 – 2.03)
TNZ	1.73 (1.45 – 2.08)
ZBW	1.21 (1.05 – 1.40)
ZMB	1.14 (1.04 – 1.26)

Prevalence Ratio; P, probability; ISO, International Organization for Standardization. Bold fonts indicate that the model is statistically significant and eligible ($PR \geq 1.5$), grey colours indicate that the model is statistically significant but ineligible, and normal fonts indicate that the model is not statistically significant. Refer to Table S2 for full country names.

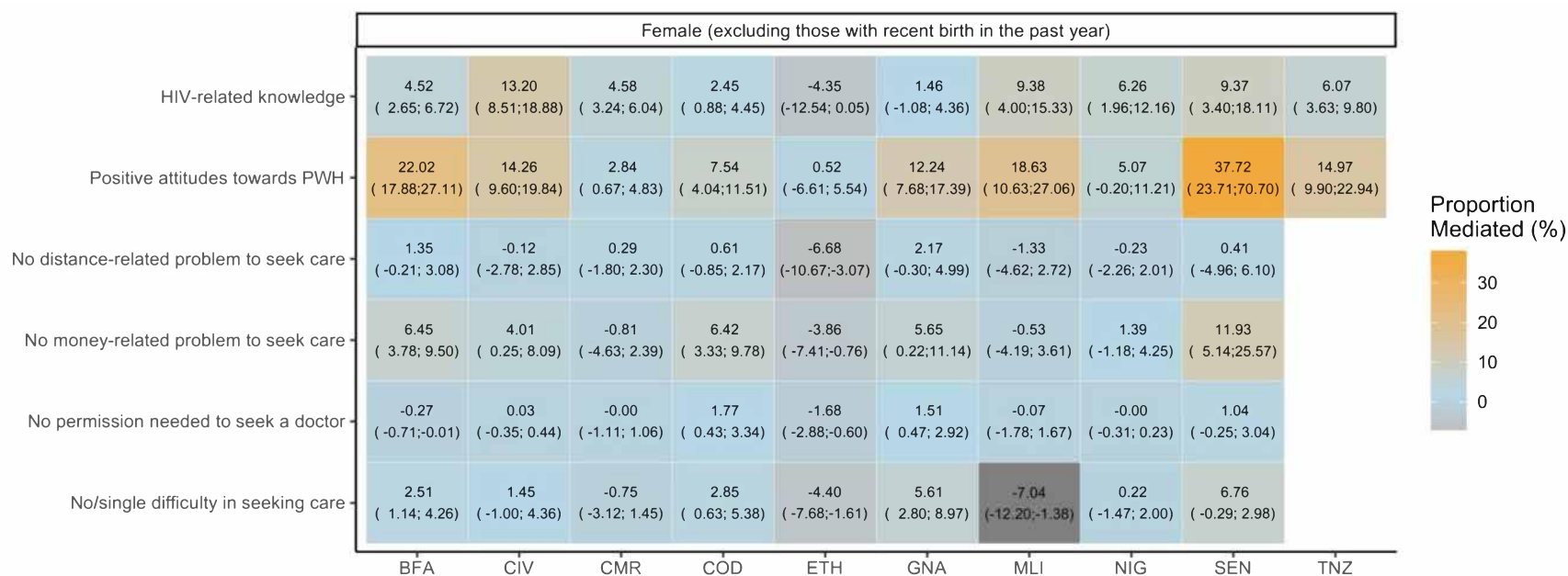


Figure S4. Heatmap of the proportion mediated by each mediator in the total effect of wealth on HIV testing among women, excluding those with recent birth in the past year (eligible models). External mediators are not available in Tanzania. Refer to Table S2 for full country names. PWH, people with HIV.

Table S7. Proportion mediated (%) by individual and joint mediators, stratified by gender, in 18 sub-Saharan African countries.

Country	Gender	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM
Mediator	Gender	HIV-related knowledge	Positive attitudes towards PWH	Sum	Mean	Joint demand-related mediator	No distance-related problem to seek care	No money-related problem to seek care	No permission needed to seek a doctor	Sum	Mean	Joint supply-related mediator
BFA	Female	4.0%	22.0%	26.0%	13.0%	13.0%	1.0%	6.0%	0.0%	6.0%	2.0%	1.0%
	Male	5.0%	22.0%	27.0%	14.0%	12.0%	-	-	-	-	-	-
CIV	Female	12.0%	14.0%	26.0%	13.0%	10.0%	-1.0%	3.0%	-0.0%	2.0%	1.0%	0.0%
	Male	12.0%	24.0%	36.0%	18.0%	20.0%	-	-	-	-	-	-
CMR	Female	5.0%	3.0%	7.0%	4.0%	3.0%	1.0%	-1.0%	0.0%	0.0%	0.0%	0.0%
	Male	3.0%	1.0%	4.0%	2.0%	2.0%	-	-	-	-	-	-
COD	Female	0.0%	8.0%	8.0%	4.0%	4.0%	0.0%	5.0%	2.0%	7.0%	2.0%	1.0%
	Male	3.0%	5.0%	8.0%	4.0%	5.0%	-	-	-	-	-	-
ETH	Female	-5.0%	0.0%	-5.0%	-3.0%	-3.0%	-6.0%	-4.0%	-2.0%	-12.0%	-4.0%	-2.0%
	Male	-2.0%	-2.0%	-4.0%	-2.0%	-2.0%	-	-	-	-	-	-
GNA	Female	2.0%	10.0%	12.0%	6.0%	6.0%	2.0%	4.0%	1.0%	8.0%	3.0%	2.0%
	Male	8.0%	6.0%	13.0%	7.0%	6.0%	-	-	-	-	-	-
KEN	Female	6.0%	3.0%	9.0%	4.0%	4.0%	-8.0%	-6.0%	-1.0%	-16.0%	-5.0%	-1.0%
	Male	0.0%	3.0%	3.0%	2.0%	1.0%	-	-	-	-	-	-
LES	Female	-5.0%	-6.0%	-12.0%	-6.0	-5.0%	6.0%	-1.0%	0.0%	5.0%	2.0%	-1.0%
	Male	2.0%	16.0%	18.0%	9.0%	1.0%	-	-	-	-	-	-
LIB	Female	2.0%	32.0%	34.0%	17.0%	32.0%	14.0%	4.0%	1.0%	19.0%	6.0%	5.0%
	Male	7.0%	7.0%	15.0%	7.0%	7.0%	-	-	-	-	-	-

Abbreviation: PM, Proportion Mediated; PWH, people with HIV.

Refer to Table S2 for full country names.

Table S7 (continued). Proportion mediated (%) by individual and joint mediators, stratified by gender, in 18 sub-Saharan African countries.

Country	Gender	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM
Mediator		HIV-related knowledge	Positive attitudes towards PWH	Sum	Mean	Joint demand-related mediator	No distance-related problem to seek care	No money-related problem to seek care	No permission needed to seek a doctor	Sum	Mean	Joint supply-related mediator
MLI	Female	9.0%	17.0%	26.0%	13.0%	14.0%	-3.0%	-1.0%	0.0%	-4.0%	-1.0%	-1.0%
	Male	4.0%	25.0%	29.0%	15.0%	17.0%	-	-	-	-	-	-
MWI	Female	3.0%	2.0%	5.0%	2.0%	2.0%	1.0%	3.0%	1.0%	5.0%	2.0%	1.0%
	Male	3.0%	7.0%	10.0%	5.0%	4.0%	-	-	-	-	-	-
NIG	Female	5.0%	4.0%	10.0%	5.0%	7.0%	0.0%	-2.0%	0.0%	-2.0%	-1.0%	0.0%
	Male	10.0%	15.0%	26.0%	13.0%	16.0%	-	-	-	-	-	-
RWA	Female	1.0%	19.0%	20.0%	10.0%	6.0%	-1.0%	48.0%	2.0%	48.0%	16.0%	14.0%
	Male	-2.0%	-11.0%	-13.0	-7.0%	-5.0%	-	-	-	-	-	-
SEN	Female	7.0%	31.0%	39.0%	19.0	26.0%	-1.0%	7.0%	2.0%	8.0	3.0%	3.0%
	Male	9.0%	40.0%	49.0%	25.0%	28.0%	-	-	-	-	-	-
SLE	Female	13.0%	10.0%	23.0%	12.0%	13.0%	6.0%	14.0%	1.0%	21.0%	7.0%	4.0%
	Male	3.0%	9.0%	12.0%	6.0%	7.0%	-	-	-	-	-	-
TNZ	Female	9.0%	17.0%	26.0%	13.0%	17.0%	-	-	-	-	-	-
	Male	-1.0%	9.00%	8.00%	4.0%	1.0%	-	-	--	-	-	-
ZBW	Female	9.0%	6.0%	15.0%	7.0%	7.0%	5.0%	0.2%	0.1%	0.3%	0.1%	0.1%
	Male	6.0%	4.0%	10.0%	5.0%	5.0%	-	-	-	-	-	-
ZMB	Female	5.0%	-10.0%	-6.0%	-3.0%	-3.0%	-178.0%	1.0%	0.0%	- 177.0%	-59.0%	-1.0%
	Male	0.0%	4.0%	4.0%	2.0%	2.0%	-	-	-	-	-	-

Abbreviation: PM, Proportion Mediated; PWH, people with HIV.

Refer to Table S2 for full country names.

