

THE LANCET HIV

Supplementary appendix 2

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Lyons CE, Twahirwa Rwema JO, Makofane K, et al. Associations between punitive policies and legal barriers to consensual same-sex sexual acts and HIV among gay men and other men who have sex with men in sub-Saharan Africa: a multicountry, respondent-driven sampling survey. *Lancet HIV* 2023; published online Jan 6. [https://doi.org/10.1016/S2352-3018\(22\)00336-8](https://doi.org/10.1016/S2352-3018(22)00336-8).

SUPPLEMENTARY TABLES

Supplementary Table 1: Summary of data collection across 10 countries in sub-Saharan Africa

Country	Recruitment dates	Sample size by country	Number of recruitment seeds	Greatest recruitment chain length	Study site locations	Number of recruitment seeds by site	Sample size by site	Citation
Burkina Faso	January – August 2013	672	11	24	Bobo Dioulasso	5	329	1,2
					Ouagadougou	6	343	
Cameroon	November 2015– October 2016	1323	11	14	Yaoundé	4	306	2,4
					Douala	1	354	
					Bertoua	4	251	
					Bamenda	1	208	
					Kribi	1	204	
Cote d'Ivoire	March – October 2015	1301	16	13	Abidjan	3	351	2
					Agboville	3	200	
					Bouake	3	350	
					Gagnoa	3	150	
					Yamoussoukro	4	250	
Eswatini	August - October 2011	326	5	14	Manzini	5	326	2,4
Gambia	May 2017– May 2018	114	19	11	Banjul	19	114	
Guinea-Bissau	September 2017 – January 2018	451	4	10	Bafatá	1	60	
					Bissau	1	280	
					Bissorã	1	57	
					Gabu	1	54	
Nigeria	January 2015 – May 2020	1716	109	26	Abuja	109	1716	2
Rwanda	March 2018 - August 2018	737	3	12	Kigali	3	737	5
Senegal	February – November 2015	724	13	15	Dakar	5	462	2,6,7
					Mbour	6	159	
					Thies	2	103	
Togo	January – June 2013	683	8	10	Lomé	4	354	2,8,9
					Kara	4	329	

Supplementary Table 2: Country specific ethics approvals and inclusion criteria

Country	National Ethics committee	Inclusion criteria: Age
Burkina Faso	Health Research Ethics Committee of Burkina Faso	≥18 years
Cameroon	National Ethics Committee of Cameroon	≥18 years
Côte d'Ivoire	The Health Research Ethics Committee of Côte d'Ivoire	≥18 years
Guinea Bissau	National Research Ethics Committee of Guinea Bissau	≥18 years
Senegal	The Senegalese National Health Research Ethics	≥18 years
Eswatini	The Swaziland Scientific Ethics Committee	≥18 years
The Gambia	Scientific Coordination Committee in the Gambia	≥18 years
Nigeria	Nigerian Federal Capital Territory Health Research Ethics Committee	≥16 years in the city of Abuja
Rwanda	The Rwanda National Ethics committee	≥18 years
Togo	Ethical Committee of Togo.	≥18 years

Supplementary Table 3: Stigma Measures

Stigma	Stigma Measure (yes/no response)
Stigma from family or friends	Have you ever felt excluded from family activities because you have sex with men?
	Have you ever felt that family members have made discriminatory remarks or gossiped about you because you have sex with men?
	Have you ever felt rejected by your friends because you have sex with men?
Anticipated/perceived healthcare stigma	Have you ever felt afraid to go to health care services because you worry someone may learn you have sex with men?
	Have you ever avoided going to health care services because you worry someone may learn you have sex with men?
General social stigma	Have you ever felt that you were not treated well in a health center because someone knew that you have sex with men?
	Have you ever heard health care providers gossiping about you (talking about you) because you have sex with men?
	Have you ever felt that the police refused to protect you because you have sex with men?
	Have you ever felt scared to be in public places because you have sex with men?
	Have you ever been verbally harassed and felt it was because you have sex with men?
	Have you ever been blackmailed by someone because you have sex with men?
	Has someone ever physically hurt you (pushed, shoved, slapped, hit, kicked, choked or otherwise physically hurt you)? Was this because you have sex with men?
	Have you ever been forced to have sex when you did not want to? (By forced, I mean physically forced, coerced to have sex, or penetrated with an object, when you did not want to). Was this because you have sex with men?

Stigma questions are categorized into 3 types of stigmas: Stigma from family or friends; anticipated/perceived healthcare stigma; General social stigma. If individuals reported 'yes' to one or more of the survey questions described in each of the responsive categories, then they were categorized as having experienced this respective type of stigma (Social stigma related to family and friends; Anticipated/perceived healthcare stigma; general social stigma).

Supplementary Table 4: Legal environment categories and definitions

Legal environment	Categories	Definitions	Source	Methodology
Policy related to same-sex sexual relationships, practices, and preferences	Criminalized	Consensual same-sex sexual acts are criminalized under national law	HIV Policy Lab* ¹⁰	Full methodology described ¹¹
	Not criminalized	Consensual same-sex acts are not criminalized under national law		
Prosecutions related to same-sex sexual relationships, practices, and preferences	Recent prosecutions	There are reports of people being prosecuted for consensual same-sex sex acts in the previous 1 year***.	HIV Policy Lab* ¹⁰	Full methodology described ¹¹
	No recent prosecutions	There are no reports of people being prosecuted for consensual same-sex sex acts in the previous 1 year***.		
Legal barriers to the registration or operation of CSOs working on sexual and gender diversity issues	Legal barriers	Confirmed legal barriers to the registration or operation of CSOs working on sexual and gender diversity issues	International Lesbian, Gay, Bisexual, Trans and Intersex Association** ¹²⁻¹⁹	Full methodology described ¹²⁻¹⁹
	No confirmed legal barriers	No confirmed legal barriers to the registration or operation of CSOs working on sexual and gender diversity issues		

* The HIV Policy Lab is a unique collaboration between academic, UN, and civil society organizations to track, measure and improve the HIV-related law and policy environment in countries around the world.

** International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA) supports LGBTI civil society worldwide through advocacy and research projects and give grassroots movements a voice within international organizations.

***Adapted from original definition of HIV policy lab of last 3 years.

Supplementary Table 5: Legal environment by country

Country	Year of data collection	Policy related to same-sex sexual relationships, practices, and preferences		Prosecutions related to same-sex sexual relationships, practices, and preferences		Legal barriers to the registration or operation of sexual orientation related CSOs
		Year of data collection	Current status	Year of data collection	Current status	Current status****
Burkina Faso	2013	Not criminalized**	Not criminalized*	No recent arrests***	No recent arrests*	Confirmed legal barriers**
Cameroon	2015–2016	Criminalized*	Criminalized*	Recent arrests*	Recent arrests*	Confirmed legal barriers**
Cote d'Ivoire	2015	Not criminalized*	Not criminalized*	No recent arrests*	No recent arrests*	No confirmed legal barriers**
Eswatini	2011	Criminalized**	Criminalized*	No recent arrests***	No recent arrests*	Confirmed legal barriers**
Gambia	2017–2018	Criminalized*	Criminalized*	Recent arrests*	Recent arrests*	No confirmed legal barriers**
Guinea Bissau	2017 – 2018	Not criminalized*	Not criminalized*	No recent arrests*	No recent arrests*	No confirmed legal barriers**
Nigeria	2015 – 2020	Criminalized*	Criminalized*	Recent arrests*	Recent arrests*	Confirmed legal barriers**
Rwanda	2018	Not criminalized*	Not criminalized*	No recent arrests*	No recent arrests*	No confirmed legal barriers**
Senegal	2015	Criminalized*	Criminalized*	Recent arrests*	Recent arrests*	Confirmed legal barriers**
Togo	2013	Criminalized**	Criminalized*	No recent arrests***	No recent arrests*	No confirmed legal barriers**

*Source: HIV Policy Lab database^{10,11}

**Source: ILGA State-Sponsored Homophobia Report.¹²⁻¹⁹

***Source: Eswatini, Burkina Faso, Togo data collection took place in years that are not captured in the HIV Policy Lab Database. ILGA State-Sponsored Homophobia Reports were reviewed and did not report any prosecutions in these countries during these years. Online media was also reviewed to identify reports of prosecutions published in the online media. For each of these countries, no reports of arrests were identified. However, the process for identifying recent arrests was different from those identified in the HIV Policy Lab database and may be subject to error.

**** Defined for each country based on most recent ILGA State-Sponsored Homophobia Report (2020). Legal barriers to CSO was not systematically reported before 2017 and therefore all countries were categorized based on the 2020 report.

Supplementary Table 6: HIV setting characteristics by country

Country	Epidemic setting	HIV prevalence among adults 15-49*	HIV prevalence among men 15-49*	HIV prevalence difference (HIV prevalence among MSM** - HIV prevalence among men 15-49*)
Burkina Faso	Concentrated	0.6	0.5	4.3
Cameroon	Generalized	2.9	1.8	18.9
Cote d'Ivoire	Concentrated	1.9	1.2	10.4
Eswatini	Generalized	27.9	19.4	-2.4
Gambia	Generalized	1.7	1.3	33.8
Guinea Bissau	Generalized	3.1	2.2	0.5
Nigeria	Generalized	1.3	0.9	38.5
Rwanda	Generalized	2.3	1.7	8.4
Senegal	Concentrated	0.3	0.3	30
Togo	Generalized	1.9	1.9	7.9

*UNAIDS estimates

**HIV prevalence estimates is the based-on HIV testing among participants in the study.

Supplementary Table 7: Correlation of structural barriers or legal environment

	Policy related to same-sex sexual relationships, practices, and preferences*	Prosecutions related to same-sex sexual relationships, practices, and preferences within the last 3 years*	Legal barriers to the registration or operation of sexual orientation related CSOs**
Policy related to same-sex sexual relationships, practices, and preferences*	1.00	-	-
Prosecutions related to same-sex sexual relationships, practices, and preferences within the last 3 years*	0.7756	1.00	-
Legal barriers to the registration or operation of sexual orientation related CSOs**	0.6203	0.7434	1.00

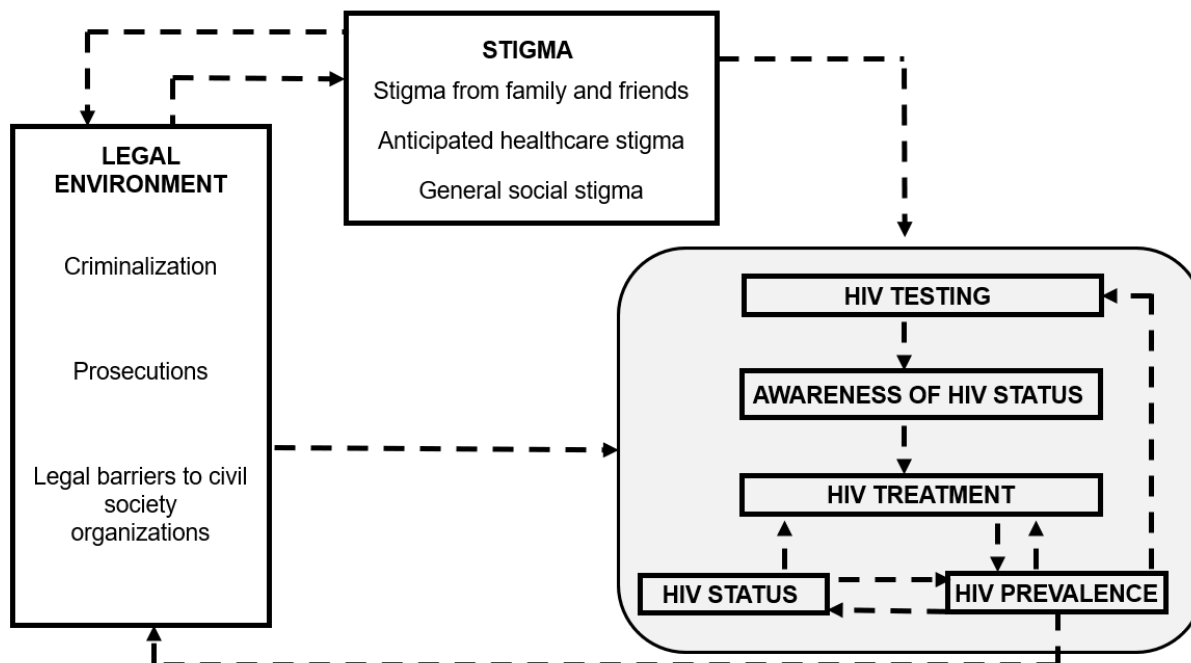
*Defined for each country based on year of data collection.

** Defined for each country based on year 2022.

Supplementary Table 8: History of HIV testing, HIV status, and awareness of HIV status among MSM by country

Country	Ever tested for HIV among all participants		Living with HIV		Ever told to be living with HIV among those living with HIV	
	%	n/N	%	n/N	%	n/N
Burkina Faso	75.5	506/670	4.8	32/668	25.0	8/32
Cameroon	72.4	957/1322	20.7	272/1313	41.9	114/272
Cote d'Ivoire	80.1	1042/1301	11.6	146/1261	32.9	48/146
Eswatini	54.3	177/326	17.0	55/234	27.3	15/55
Gambia	50.0	57/114	35.1	40/114	5.0	2/40
Guinea Bissau	36.3	163/449	2.7	12/453	9.1	1/11
Nigeria	78.4	1339/1708	39.4	664/1686	53.8	357/664
Rwanda	90.8	668/736	10.1	74/736	60.8	45/74
Senegal	70.2	508/724	30.3	219/724	13.2	29/219
Togo	70.5	478/678	9.8	67/681	14.9	10/67

Supplementary Figure 1. Framework for legal environment, stigma, and HIV



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