

A socioecological measurement of homophobia for all countries and its public health impact

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Background: Measuring homophobia at country level is important to guide public health policy as reductions in stigma are associated with improved health outcomes among gay men and other men who have sex with men. **Methods:** We developed a Homophobic Climate Index incorporating institutional and social components of homophobia. Institutional homophobia was based on the level of enforcement of laws that criminalise, protect or recognise same-sex relations. Social homophobia was based on the level of acceptance and justifiability of homosexuality. We estimated the Index for 158 countries and assessed its robustness and validity. **Results:** Western Europe is the most inclusive region, followed by Latin America. Africa and the Middle East are home to the most homophobic countries with two exceptions: South Africa and Cabo Verde. We found that a 1% decrease in the level of homophobia is associated with a 10% increase in the gross domestic product per capita. Countries whose citizens face gender inequality, human rights abuses, low health expenditures and low life satisfaction are the ones with a higher homophobic climate. Moreover, a 10% increase in the level of homophobia at country level is associated with a 1.7-year loss in life expectancy for males. A higher level of homophobia is associated with increased AIDS-related death among HIV-positive men. **Conclusion:** The socioecological approach of this index demonstrates the negative social, economic and health consequences of homophobia in low- and middle-income countries. It provides sound evidence for public health policy in favour of the inclusion of sexual minorities.

Introduction

Despite noticeable progress in terms of inclusion of sexual minorities in the vast majority of countries over the last 40 years, the stigma associated with gay men and other men who have sex with men (MSM) is still prevalent in most societies.

Stigma applies when elements of labelling, stereotyping, separation, status loss and discrimination co-occur in a power situation that allows the components of stigma to unfold.¹ Stigma can occur at individual, interpersonal and structural levels.^{2,3} Homophobia, a particular case of stigma based on sexual orientation and gender identity, affects primarily lesbian, gay, bisexual, transgender and intersex people (LGBTI). Several definitions focus on the clinical aspect of a phobia, describing homophobia as 'an irrational, persistent fear or dread of homosexuals'.⁴ Here, we use the term homophobia to refer to any negative attitude, belief, or action toward persons of differing sexual orientation or gender identity. It includes laws and structural manifestations of that prejudice in institutional settings, such as the workplace.⁵ This working definition encompasses the three levels of stigma described earlier.

The level of infringement of human rights, verbal and physical violence and denial of health services associated with homophobia is a public health issue. Stigma is a central driver of morbidity and mortality at a population level.⁶ Gay men facing enacted sexual stigma are more likely to engage in sexual risk behaviours.^{7,8} They are less likely to adhere to their antiretroviral treatment⁹ and have lower HIV testing rates.^{9–15} Finally, internalized homonegativity is associated with lower levels of HIV testing and lower levels of condom use in gay and bisexual men.¹⁶ A socio-ecological approach to health-related behaviour¹⁷ allows for studies of stigma related to sexual orientation and gender identity in their broader structural and social dimensions.^{1,6,18} Most

studies of homophobia focused at the individual level. Being able to identify the level of homophobia at country level is important to guide public health policies as recent evidence shows that reductions in the homophobic climate are associated with improved health outcomes among gay men and other MSM.¹⁹ This study aims to propose and validate a robust index to measure homophobia at country level, including in low- and middle-income countries (LMIC).

Methods

Data sources

The availability and reliability of data on stigma and discrimination related to gender identity and sexual orientation and gender identity is uneven from country to country. Data on HIV and on gay men and other MSM were obtained from AIDSinfo²⁰ an online repository of global AIDS data compiled and maintained by UNAIDS, as well as from scientific articles and grey literature. Economic and development indicators such as gross domestic product, health expenditures, proportion of seats held by women in parliaments, gender inequality, mean years of schooling and life expectancy were drawn from the IMF World Economic Outlook, the 2015 Human Development Report and the World Population Prospects published by the Department of Economic and Social Affairs of the United Nations Population Division. We used the individual data from the World Values Survey which we aggregated at country level. The information on laws and legislation comes from the International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA). The rule of law index comes from the World Justice Project and the Cantril index from the Gallup World Poll. We used the data on homophobia made available by the Pew Research Center. We used STATA 14 for statistical analysis.

Model and analytic strategy

We propose a socio-ecological construct for measuring homophobia that translates the important role played by institutional but also interpersonal factors. Let the level of homophobia for a country (i) be the combination of institutional (IsH) and social (SoH) homophobia for each country (i).

$$(1) \quad HCI_i = \beta_1 IsH_i + \beta_2 SoH_i$$

Institutional homophobia

Institutional homophobia, IsH_i , relates to the formal codes, such as laws and legislations that societies adhere to. Some of these codes may establish an institutional construct for inclusion or discrimination against people based on their sexual orientation or gender identity. These laws in their turn influence people's behaviour and thoughts towards persons of differing sexual orientations and gender identities.^{21–24} First, we considered a set of 11 laws that characterise the level of institutionalized homophobia of a country. For each country, those 11 laws are individually valued from 1 to 3 whether it is inexistent, existent and in force, or in force only in parts of its territory. The level of implementation is the one reported by the International Lesbian, Gay, Bisexual, Trans and Intersex Association.²⁵

Second, we estimated the coefficients for these 11 laws globally. To ensure a transparent and objective weighting system, we considered the way all countries are combining (or not) a said law with the ten other laws considered here. By doing so, we reflect the choice of countries to enforce laws favouring inclusion and protection or, *a contrario*, laws criminalizing same-sex relationships. To do so, we built polychoric correlation matrices as these variables are categorical and ordinal. Our methods demonstrated high internal consistency with an ordinal alpha of 0.92 and 0.83 for the inclusion and the criminalizing laws, respectively. The weight of each law was then estimated by a factor analysis. Laws and their coefficients are presented in [Supplementary annex S1](#). Institutional homophobia is expressed as

$$(2) \quad IsH_i = \sum_{n=1}^{11} \gamma_n L_{n,i} + \varepsilon_i$$

where γ_n are the factor loadings for the each law n and $L_{n,i}$ is the level of enforcement of law n in country i , with $L_n = [1, 3]$ and $i = [1, 158]$.

Social homophobia

Social homophobia, SH_i , relates to interactions between communities or groups and individuals. A key characteristic is the direct reaction of individuals towards gay men and other MSM.

Social homophobia reflects societal norms and behaviours based on moral, religious and cultural beliefs. It encompasses interpersonal processes as well as physical reactions such as avoidance or aggression, whether sexual, verbal or physical. These reactions take form in social networks such as family, workplace or friends. It can also be found within communities, whether ethnic, cultural, moral or religious ones.

Markers of social homophobia are difficult to measure, particularly at country level. We focus on the interpersonal reactions, assuming it reflects the ultimate degree of societal penetration. We considered two representative questions asked to >460 000 individuals in 91 countries within the three most recent waves of World Values Survey,²⁶ the 2008 European Values Survey²⁷ and the Afrobarometer.²⁸ The first question is 'On this list are various groups of people. Could you please mention any that you would not like as neighbours?' This is a dichotomized answer whether respondents selected 'homosexuals' or not. The second question was,

'Do you think [homosexuality] can always be justified, never be justified, or something in between?' Answers were given on a scale from 1 to 10, with 1 meaning never justifiable and 10 meaning always justifiable. For each question, we considered the answers from all respondents for each country and calculated a country-specific value. Following a factor analysis, we weighted these two variables equally. We performed multiple imputations and predicted values for the remaining 45 countries with missing values for social homophobia, representing slightly more than a quarter (28%) of the total number of countries studied (158). The social homophobia component can be expressed as:

$$(3) \quad SoH_i = \frac{1}{n} \sum_n acceptance_{n,i} + justifiability_{n,i}$$

Where n = number of respondents for country i and $i = [1, 158]$.

We also considered homophobic violence. Unfortunately, only a minority of countries, essentially the least homophobic ones, systematically record homophobic violence and hate crimes. Reporting homophobic violence requires that the victims reveal their sexual orientation which, in too many countries still, may expose him/her to additional risks of violence and retaliation. It is worth noting that there has been remarkable progress by non-State actors in reporting hate crimes in several countries. Despite these advancements, data are still scarce, often limited to capital cities or large urban areas. If more data become available in the future, homophobic violence can be integrated in [equation \(3\)](#).

We developed the homophobic climate index by compiling institutional and social homophobia data. Both components are weighted equally as confirmed with a factor analysis, i.e. $\beta_1 = \beta_2$ in [equation \(1\)](#).

Reliability and validity of the homophobic climate index

We measured the internal consistency of the index with a reliability coefficient, measured by the Cronbach's alpha. We also performed a confirmatory factor analysis to confirm that the scale in question is unidimensional.

In order to assess the validity of the HCI, we first controlled the results from regressions of the HCI for two subsamples of countries randomly selected, with independent social and economic variables such as income, gender equality, human rights, satisfaction in life, health expenditures and compared with the results obtained with the whole set of countries.

Finally, we examined the stability of the correlation between the HCI and a control index to assess whether our instrument measures what we want to measure. We used the Gallup²⁹ question on homophobia 'is the city or area where you live a good place or not a good place for gay or lesbian people' as control index and performed iterated regressions.

Results

The model and data available enabled the estimation of the homophobic climate index (HCI) for 158 countries. The index shows good internal consistency, with a Cronbach's alpha of 0.82, and the control regressions with subsamples countries as well as with the control index enable us to consider the HCI a statistically reliable and valid index to measure homophobia. Regression and statistical tests are presented in [Supplementary annex S2](#).

The index ranges from 0 to 1, with higher values for more homophobic countries. [Figure 1](#) presents the map of the homophobic climate (See [Supplementary annex S3](#) for the ranking of 158 countries). [Table 1](#) presents the 10 most inclusive countries, globally (1a) and among low- and middle-income countries (1b). The 10 most homophobic countries are also listed (1c).

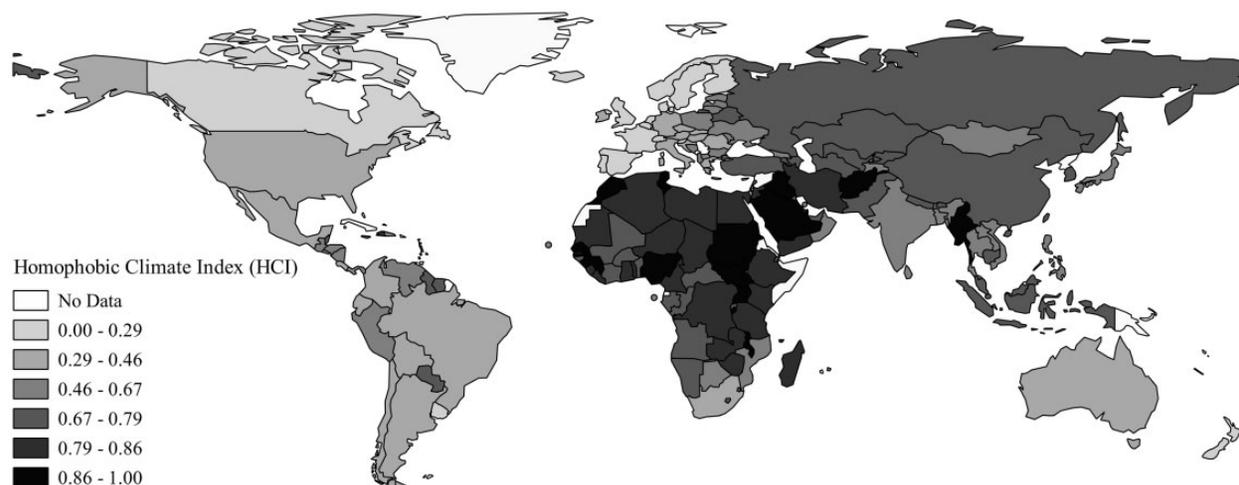


Figure 1 Homophobic climate index

Table 1 Homophobic Climate Index 2017: Top 10 most inclusive and most homophobic countries

1a: Top 10 most inclusive countries			1b: Top 10 most inclusive low-and middle-income countries (LMIC)			1c: Top 10 most homophobic countries		
Rank	Country	HCI	Rank	Country	HCI	Rank	Country	HCI
1	Sweden	0.112	18	Colombia	0.321	149	Tunisia	0.870
2	Netherlands	0.131	20	Brazil	0.338	150	Burundi	0.873
3	Denmark	0.137	22	South Africa	0.352	151	Iraq	0.878
4	Norway	0.140	25	Mexico	0.369	152	Guinea	0.880
5	Spain	0.163	28	Ecuador	0.400	153	Nigeria	0.884
6	Finland	0.168	35	Romania	0.443	154	Qatar	0.897
7	Belgium	0.177	36	Costa Rica	0.444	155	South Sudan	0.905
8	France	0.180	41	Cabo Verde	0.474	156	Saudi Arabia	0.926
9	Uruguay	0.189	42	Serbia	0.482	157	Afghanistan	0.935
10	United Kingdom	0.206	43	Bolivia	0.489	158	Sudan	0.957

The most inclusive countries are essentially in Western Europe and Uruguay. Among the LMIC, Latin America appears as a leading region in promoting inclusion and fighting homophobia. It is worth noting that two African countries, South Africa and Cabo Verde are among the top 10 most inclusive LMIC. The case of South Africa is particularly interesting as it paves the way to a more comprehensive and successful response to the HIV epidemic that could serve as an example in other countries of the region.

Homophobia and socioeconomic determinants

We performed multivariate regressions, using the country level of homophobia as explanatory variable to predict the value of key socioeconomic and public health outcome variables. It should be reminded that results of these regressions represent correlation and do not necessarily imply causal relationships. Descriptive statistics of the variables are presented in [Supplementary annex S4](#). We found a clear negative relationship between the level of homophobia and income. A 10% change in GDP per capita is associated with a 1% point reduction in the mean homophobic climate index ([table 2](#), model 1). In addition, gender inequality, measured by the share of parliamentary seats held by women, is strongly correlated with higher homophobic climate. One can also note the statistically robust association between the level of homophobia and abuses of human rights. There is a strong negative relationship between the level of homophobia of a country and the level of satisfaction in life of its citizens, measured by the Cantril ladder ([figure 2](#)).

It appears from [table 2](#) that homophobia is also negatively associated with the share of MSM among total population;

meaning that a larger share of gay men and other MSM among the population is associated with lower degree of homophobia.

We found that a 10% point reduction in public health spending as a share of GDP is associated with an increase in the homophobic climate of 9% points ([table 2](#), model 2). Moreover, AIDS-related deaths among men living with HIV are associated homophobia ([table 2](#), model 3).

Finally, even after controlling for markers of economic and social inequalities, the level of homophobia at country level is strongly associated with premature death among men. This translates into a 1.7-year reduction in life expectancy among its male population for a 10% point increase of the level of homophobia. See [Supplementary annex S5](#). It should be reminded here that the correlations we identified between the level of homophobia at country-level and different markers of health, social and economic development do not necessarily imply a causal relationship.

Discussion

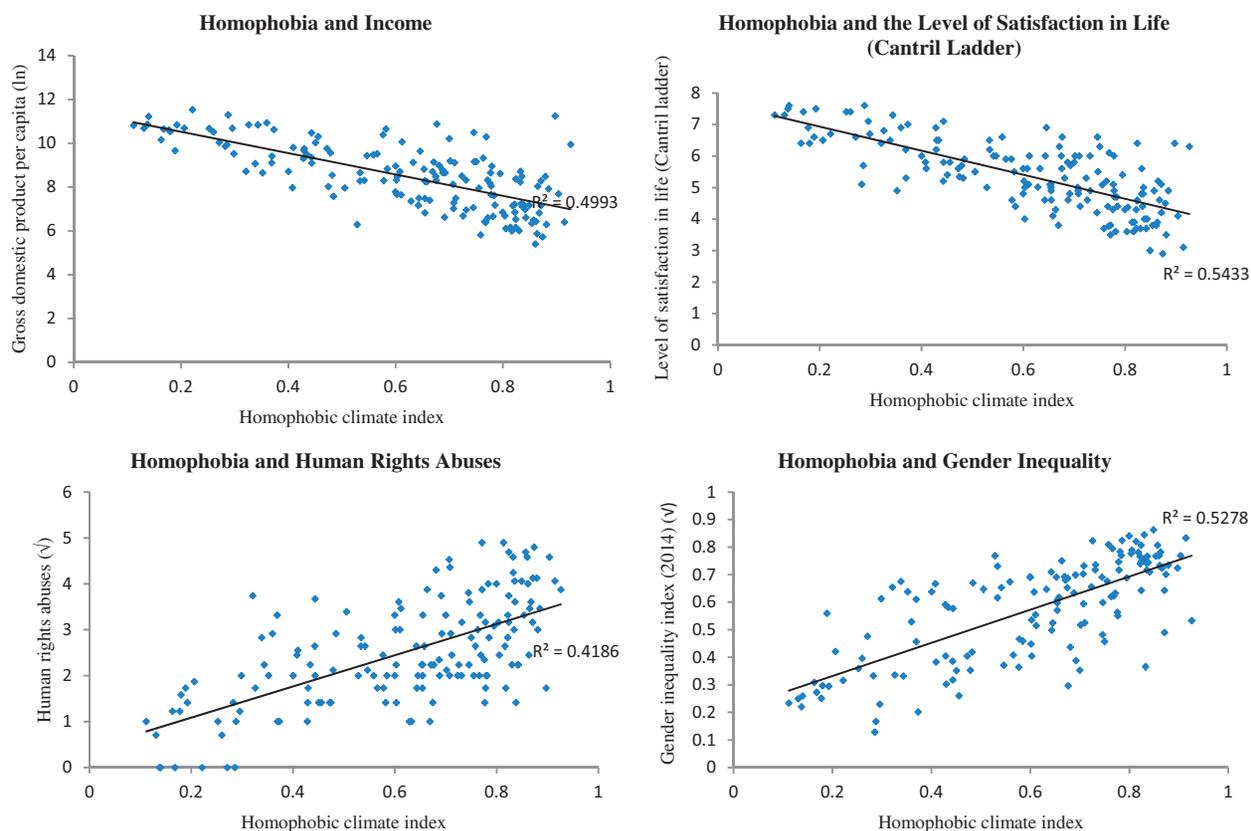
In this study, we developed a statistically robust and valid index that translates institutional and social homophobia in most low- and middle-income countries across the globe. This socioecological approach provides a holistic picture of sexual orientation related stigma. We showed that homophobia is associated with lower economic output at country level. Furthermore, the level of homophobia appears to be closely related to lower investment in health and to social inequalities, such as lack of recognition of human rights and gender inequality. We found a negative relationship between the level of homophobia and life expectancy among

Table 2 Associations between homophobia and key socioeconomic and public health outcome variables

	Model 1	Model 2	Model 3
	(95% CI)	(95% CI)	(95% CI)
Revenue per capita (ln GDP pc)	−0.101 *** (−0.119 −0.083)	−0.033 ** (−0.057 −0.010)	−0.031 ** (−0.060 −0.003)
Share of parliament seats by women (\sqrt{x})		−0.26 ** (−0.043 −0.008)	−0.018 ** (−0.035 −0.001)
Human rights abuse (\sqrt{x})		0.054 *** (0.036 0.072)	0.047 *** (0.029 0.064)
Satisfaction in life		−0.041 ** (−0.069 −0.013)	−0.050 *** (−0.079 −0.020)
Health expenditures		−0.009 ** (−0.016 −0.003)	
Proportion of MSM among total pop		−6.501 *** (−8.669 −4.342)	−5.644 ** (−7.918 −3.371)
Share of male AIDS death among male HIV+ (\sqrt{x})			0.507 ** (0.031 0.982)
Constant	1.481 *** (1.341 1.620)	1.246 *** (1.098 1.394)	1.086 *** (0.828 1.345)
Model fit indices			
R2	0.49	0.79	0.81
R2 adjusted	0.49	0.78	0.80
F	125.09	100.65	110.27
Prob>f	0.0000	0.0000	0.0000
N	158	147	137

Notes: Bootstrap jackknife regressions, *CI* confidence intervals.

* $P < 0.05$, ** $P < 0.01$ and *** $P < 0.001$.

**Figure 2** Relationship between homophobia and income, human rights abuses, satisfaction in life and gender inequality

males and showed that AIDS-related deaths among HIV-positive men are associated with higher level of homophobia.

We also found that homophobia is negatively associated with the share of MSM among the total population. This finding raises two caveats: first, a correlation does not imply causality. This point is

important to prevent misinterpretation to justify or promote homophobia in order 'to contain' the number of men having sex with men. Second and paradoxically, it does not imply that homophobic countries have fewer gay men and other MSM. Instead, it may mean that in these settings, this population group

is underreported and underestimated.^{30–32} Cultural, moral, religious beliefs may prevent men in some countries from coming out of the closet.³³ In addition, individuals expecting negative reactions from others due to their differing sexual orientation or gender identity are less likely to report their sexual activity. In highly homophobic countries, gay men and other MSM cannot disclose their sexual orientation without exposing themselves to severe prejudices. Gay men and other MSM may conceal their sexual orientation, or have heterosexual behaviour,³⁴ leading to additional under-reporting. Finally, the definition of homosexuality varies among different settings. In many countries the *insertive* male partner is not labelled or considered homosexual, only the *receptive* partner is.³⁵

Two limitations should be noted. First, modelling homophobia at country level implied trade-offs in the identification of variables and proxies that adequately translate the different dimensions of homophobia, in addition to being available for all countries. Country-level analysis also means that variations within countries cannot be captured. The level of homophobia may vary from one city to another and from urban to rural areas. State and non-State actors at country level play a key role in filling these gaps and ensuring that no sexual minority is denied its rights and its access to care. Second, even though we controlled for collinearity, one should keep in mind that the institutional and social homophobia are interrelated to some extent: individuals may live in an environment where social, religious and cultural norms deeply interact with legislation. In other settings, laws and policies may implicitly favour stigma and discrimination against some minorities. Finally, the social homophobia experienced by individuals in some closed societies may provide ground for internalized homonegativity. This favours arguments for a holistic approach when identifying interventions aiming to reduce sexual-orientation related stigma and discrimination.

Recent epidemiological evidence shows the increasing incidence of HIV among gay men and other MSM in most countries; new HIV infections rose by almost 12% between 2011 and 2015.³⁶ There is growing evidence that homophobia impedes access to prevention, care and treatment by gay men and other MSM.^{16, 37–40} The availability of this index of homophobia at country level enables the better understanding of the determinants of vulnerability to HIV infection among gay men and other MSM in low- and middle-income countries.

The socioecological model developed here provides a robust and valid measure of homophobia that can inform public health decision-making. Increased availability of data in low- and middle-income countries could enable future development of the socioecological approach to measuring homophobia. For example, internalized homonegativity and homophobic violence are important variables that could be considered if more data are made available at country level.

Too many people are victims of stigma and discrimination related to sexual orientation and gender identity. Countering homophobia is part of public health policy and all actors with influence, including civil society and policy-makers should promote more inclusive societies.

Supplementary data

Supplementary data are available at *EURPUB* online.

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Disclaimers

All co-authors contributed to this article in their personal capacity. The views expressed are their own and do not necessarily represent the views of their respective organization.

Conflicts of interest: None declared.

Key points

- There is a significant negative correlation between economic development and homophobia.
- Homophobia is associated with lower life expectancy for males at country level.
- Males living with HIV are more likely to die from AIDS in homophobic countries.
- Countering homophobia and other stigma related to sexual orientation and gender identity should be part of public health policy.

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