

Stigma, Health Care Access, and HIV Knowledge Among Men Who Have Sex With Men in Malawi, Namibia, and Botswana

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Abstract Same-sex practices are stigmatized in much of sub-Saharan Africa. Cross-sectional relationships between discrimination, access to and use of health care services, and HIV knowledge among men who have sex with men (MSM) were assessed in Malawi, Namibia, and Botswana. A survey and HIV screening were used to explore these variables and the prevalence of HIV. Overall, 19% of men screened positive for HIV infection. Ninety-three percent knew HIV is transmitted through anal sex with men, however, only 67% had ever received information of how to prevent this transmission. Few (17%) reported ever disclosing same sex practices to a health professional and 19% reported ever being afraid to seek health care. Men reported ever been denied health care services (5%) and

21% had ever been blackmailed because of their sexuality. Strong associations were observed between experiences of discrimination and fear of seeking health care services. Characterizing the relationship between stigma and health care seeking practices and attitudes can inform the development and implementation of HIV interventions for African MSM.

Keywords Stigma · Discrimination · HIV/AIDS · Men who have sex with men (MSM) · Namibia · Botswana · Malawi

Introduction

HIV first emerged in the 1980s among men who have sex with men (MSM) in high income countries. Infection with HIV or being identified as a person at high risk for HIV still carries a stigma, as infected and high risk individuals are often associated with behaviors shunned by society, including same sex practices [1, 2]. While the global response to the pandemic has progressed over the decades both in scale and in efforts to reach diverse and vulnerable groups, stigma and discrimination still follow affected individuals in many settings [3].

The definition of stigma was first described in the context of research as a mark that is applied by society to “an attribute that is significantly discrediting” [4, 5]. Stigma develops through rules or sanctions against a particular perceived deviance [5], such as same-sex practices may be considered, and develops when labeling, isolation, stereotyping, status loss, and discrimination occur within social, political, economic, or health-related power situations [6]. Several levels of stigma—the individual, community, and structural levels—interact in a dynamic way to foster the

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development of stigma and discrimination [6]. Stigma can exist in several forms, and much research focuses on the perceived, experienced, anticipated, and internalized stigma that exists associated with HIV/AIDS and for those who are vulnerable to HIV.

Perceived and internalized stigma refers to the perceptions of the individual. In the case of MSM, perceived stigma reflects how a man thinks others will respond if they knew about the individual's same-sex orientation. Internalized stigma, or for gay men and other MSM internalized homophobia, refers to how an individual feels about his sexuality and can include feelings of shame and fear, which often relate to experienced stigma [7]. Experienced stigma is the actual experience or occurrence of discrimination, such as denial of health care services or the criminalization of same-sex practices. Experienced stigma is a construct closely related to human rights abrogation. These forms of stigma play a role in the lives of MSM and within the context of the HIV epidemic.

In sub-Saharan Africa, same-sex practices are highly stigmatized and in many countries, criminalized. While the HIV epidemic has mainly been driven by heterosexual and vertical transmission in Africa, data on the disproportionate burden of HIV among MSM continues to emerge [8–12]. A 2007 report by the International Gay and Lesbian Human Rights Commission called for specific attention to the issue of the effects of discrimination on the HIV epidemic among gay and lesbian persons in Africa. By describing the dearth of HIV prevention and treatment services accessible to sexual minorities in Africa—despite evidence of increased vulnerability—and the denial of basic human rights, the report suggested that HIV/AIDS stakeholders risked “jeopardizing the overall efforts to combat the AIDS epidemic” [12]. In Zambia, a survey among MSM found that 33% of the participants self-reported infection with HIV, compared to a national adult HIV prevalence of 15.2% [8, 9]. In Kenya, men who reported only having sex with other men had an HIV prevalence of 43% [10]. In Senegal, where the national HIV prevalence is an estimated 1%, 22% of MSM surveyed were HIV-positive [11].

The countries in this study, Botswana, Malawi, and Namibia, all have generalized HIV epidemics, but data on the proportion of cases among MSM is unknown. As of 2007, an estimated 200,000 people were living with HIV in Namibia, 300,000 in Botswana, and 930,000 in Malawi [8]. Same-sex practices are criminalized in all three countries, and currently no government funding is allocated to prevention programs for MSM in any of them [8].

HIV among MSM in these settings may go undetected as men avoid situations in which their sexuality and/or HIV infection status may be disclosed due to perceptions of discrimination or stigma that may result from such

disclosures. Among participants enrolled in an exploratory study among MSM in Malawi, 30% reported fear of discrimination and stigma if they were to disclose their sexuality to others, despite that the majority of participants felt comfortable with their sexual orientation [13], and Baral and colleagues reported that only 9% had ever disclosed to a health care worker [8]. As a result of such anticipated stigma, men who engage in same sex behavior may therefore be too fearful to seek medical care or information on HIV and prevention measures [14]. In South Africa, where discrimination on the basis of sexual orientation is constitutionally prohibited, non-gay identified MSM avoided disclosing sexual practices to healthcare workers after witnessing and/or learning of verbal abuse experienced by gay men in STI clinics. Moreover, gay identified MSM avoided seeking sexual health services, often at the expense of their health, or sought non-stigmatizing services [15].

Access to and utilization of HIV prevention and care by MSM is often influenced by layered stigma, associated with stigma related to both sexuality and HIV diagnosis. In South Africa and Kenya, MSM reported that perceived stigmatization due to HIV-positive status and/or their sexuality presented a barrier to seeking health care services [15, 16]. Poor access to care can lead to an underutilization of services, such as HIV voluntary counseling and testing, and ultimately to low self-awareness of HIV serostatus [1, 17]. A recent HIV vaccine preparedness trial in Kenya reported a baseline HIV prevalence of 25% among MSM, all of whom were previously unaware of their HIV-positive status [17]. Comparing perceived and experienced stigma levels between HIV-positive MSM and HIV-positive men who have sex with women in Cape Town, South Africa, Cloete and colleagues found that while MSM and men who have sex with women had similar levels of internalized AIDS stigma, HIV-positive MSM experienced higher levels of discrimination compared to the men who have sex with women, suggesting the multi-faceted stigma experienced by men with same-sex behaviors and HIV-positive status [18].

Perceived and experienced stigma not only impact access to health care services, but also limit the information MSM receive on HIV transmission and prevention to that which is specific to heterosexuals. In previous studies conducted in sub-Saharan Africa, many MSM have reported incorrect information about HIV transmission. In Sudan, 55% of MSM thought prevention methods for sex with a woman did not apply to anal sex, and in Zambia, 73% of MSM thought anal sex was safer than vaginal sex [19, 20]. Exposure to MSM specific HIV prevention messaging was low (18%) among participants enrolled in the exploratory study among MSM in Malawi, and less than 60% of the participants had ever obtained VCT [13]. Correct knowledge of HIV transmission and prevention is

an area of concern for this hidden population, and perceived stigma may play a role in impeding their access to information and services.

From a clinical standpoint, perceived stigma may impact how one responds to infection. Concealing one's sexuality places greater stress on an individual and has been associated with lower CD4 T-cell count and overall poorer health among HIV-positive MSM [21, 22]. Disclosing both sexual orientation and HIV-positive status have independently shown an increase in CD4 cell counts, linking psychological distress to immune functioning [22].

Given the lack of data on the prevalence of HIV among MSM, concurrent with criminalization of same-sex practices among men and reports of stigma and discrimination targeted to homosexual men and women as well as healthcare workers providing services to MSM in Africa, we sought to understand the experiences and perceptions of stigma among MSM in Namibia, Malawi, and Botswana. This paper explores the relationships between perceived and experienced stigma and healthcare seeking behavior, access to HIV prevention and treatment services, as well as exposure to HIV prevention education. Characterizing and understanding these associations can help provide evidence to focus future areas of research and targets for prevention measures and advocate for policy change where necessary.

Methods

Study Design and Population

The methods used in this study have been reported elsewhere [8]. Briefly, the study was conducted in Blantyre and Lilongwe, Malawi; Windhoek, Namibia; and Gaborone, Botswana; all capitals (Blantyre being considered the financial capital and Lilongwe the political capital of Malawi) with known MSM populations and community-based organizations (CBOs) operating to provide services for MSM. Researchers partnered with local CBOs with previous experience working with MSM. CBO staff members were trained in human subjects research training that included obtaining informed consent and confidentiality, as well as recruitment and interviewing methods. Technical support was provided to the CBOs by research staff and other local organizations with expertise in HIV services. Participating CBOs included: the University of Namibia HIV/AIDS Unit, The Rainbow Project (Namibia), the Malawi College of Medicine, the Center for Development of People (Malawi), and the Botswana Network on Ethics, Law, and HIV/AIDS.

Due to the hidden nature of the MSM populations in these cities, recruitment was conducted using snowball sampling to prevent unintentional disclosure of sexuality.

In Malawi, 20 seeds were identified who in turn recruited either 9 or 10 participants each, for a total sample size of 202 men. In Namibia, a total of 218 participants were recruited through 20 seeds and 10 seeds recruited 117 men in Botswana. Eligibility criteria required that participants be 18 years of age or older and report a history of ever having anal intercourse with a man. Men were included regardless of their sexual orientation, frequency of sexual contacts, HIV testing history, or HIV serostatus. The study was anonymous and confidential. No personal identifiers were recorded and no written communication (including the use of verbal consent scripts) was used in order to minimize the risk of disclosing the men's sexuality or of a participant's involvement in the study.

Data Collection

A survey of 45 multiple-choice questions was administered to study participants in local languages by trained research staff. The survey was first piloted, and reviewed and adapted by the CBOs. Each survey lasted approximately 25 min and participants were reimbursed for the travel costs and time. The survey included topics such as demographics, sexuality, HIV knowledge, perceived and experienced stigma, access to health care, experienced discrimination, and human rights. To further ensure confidentiality, participants were required to enter and exit the study facility through separate entrances. Non-traceable alphanumeric codes were used to link HIV screening results to the surveys, to ensure HIV screening results could not be traced back to the individuals by the staff conducting the tests.

Knowledge of HIV transmission and prevention was measured through three "yes or no" questions; if HIV could be transmitted through sex with a man, sex with a woman, and injection drug use. Exposure to HIV prevention education was assessed by asking whether anyone had provided the participant with information on how to prevent getting HIV from a woman or a man.

Access to healthcare was assessed by the question of whether the participant had "ever been denied health care services on the basis of your sexuality." Health care seeking behavior was measured with a question, "have you ever been afraid to seek healthcare services." Utilization of services was measured through five questions related to testing and treatment for STI, and testing, diagnosis, and treatment for HIV. Disclosure of sexual behavior was assessed when participants were also asked if they have "told any personnel at a hospital or clinic that you have sex with other men."

Experienced stigma on the basis of sexuality was measured by responses to two situations representing potential types of discrimination that may occur for MSM; whether the participant had "ever been denied health care services

on the basis of your sexuality” and “ever been blackmailed because of your sexuality.” The survey also included seven other questions related to human rights, but these did not assess any potential relationship to sexuality.

HIV screening for participants was done using an oral fluid test, Orasure Oraquick HIV-1/2 Kit. This screening tool has a sensitivity of 99.1% and specificity of 99.6% with oral fluid compared with blood [23]. The screening took place in a separate room from the interview, and was conducted by research staff members who did not administer the survey so as to maintain participant confidentiality and prevent disclosure of HIV status. The results from this screening test were used solely for the purpose of this study and results were not disclosed to the participant. Participants were informed up front, during the consent process that the HIV screening tests were for research purposes only, to understand the prevalence of HIV in the MSM community and were not to diagnose individuals. Counseling for the need and value of HIV testing was provided to all participants and information was provided for local diagnostic testing centers where appropriate confirmatory testing could be completed.

Data Analysis

Exploratory analysis of HIV screening results and the social and behavioral variables was conducted using STATA version 10 [24]. Logistic regression and χ^2 tests of independence were used to assess the bivariate associations between the exposures of interest: HIV knowledge,

exposure to HIV prevention messages, and health seeking behavior and utilization, and the primary outcomes of interest: experienced discrimination events. Since several variables for individual countries were perfectly predicted in the univariate analysis, we added values of one for analytic purposes [25]. Odds ratios and 95% confidence intervals are reported. Statistical significance was defined as a $P < 0.05$.

Ethical Approval

The study was approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board, as well as the University of Namibia Institutional Review Board, the Malawi College of Medicine, and the Ministry of Health in Botswana.

Results

Population Characteristics

A total 537 men were recruited into this study: 202 from Malawi, 218 from Namibia, and 117 from Botswana. Select general population characteristics are presented by country in Table 1, and MSM in these three countries were similar with respect to age, education, and employment. Overall, 54% were between 17 and 24 years of age, 40% between 25 and 34 years of age and only 6% above the age of 35. Almost all the men received a secondary education or higher (92%) and less than half the men were currently

Table 1 General population characteristics of MSM participants in Malawi, Botswana and Namibia

Variable	Malawi		Botswana		Namibia		Pooled	
	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>
Mean age 95% CI	25.7 (20.4–31.0)		24.6 (19.8–29.3)		24.4 (18.9–29.9)		24.9 (19.6–30.2)	
Education								
Primary or less	8.0	16	1.7	2	9.6	21	8.8	39
Secondary or more	92.0	185	98.3	115	90.4	197	91.8	497
Currently employed	51.24	51.2	103	49.1	57	41.9	91	47.0
Self-reported sexual orientation								
Heterosexual	6.5	13	3.4	4	19.4	42	11.1	59
Homosexual	40.5	81	66.7	78	48.6	105	49.5	264
Bisexual	53.0	106	29.1	34	29.2	63	38.1	203
Transgender	0.0	0	0.9	1	2.8	6	1.3	7
Disclosed MSM status to...								
Immediate family	6.0	12	32.8	38	36.2	79	24.2	129
Extended family	13.9	28	52.6	61	34.9	76	30.8	165
Health professional	9.0	18	24.1	28	21.6	47	17.4	93
HIV prevalence	21.4	21.4	43	19.7	27	12.4	27	17.4
95% CI	(16.3–27.6)		(13.5–17.4)		(8.7–17.4)		(4.4–20.8)	

employed (47%). Less than half of the men reported disclosure that they had ever had sex with a man to family members (38%) and even fewer reported disclosing this to a health professional (17%). Of the men who were screened for HIV in this study, an overall HIV prevalence of 19% was observed. Other demographic and behavioral characteristics, including sexual concurrency, current relationship, numbers of partners, and condom use in these study sites have been reported elsewhere [8].

HIV Knowledge and Exposure to HIV Prevention Information

Overall, the majority of men in the study were aware of HIV transmission routes (Table 2). Ninety-three percent of participants knew HIV is transmitted through anal sex with men, with the majorities also reporting to understand transmission risk by sex with a woman (98%), and injection drug use (85%). A high proportion of men reported ever receiving information on how to prevent getting HIV from a woman (94%); however, only 67% had ever received information about how to prevent getting HIV from a man; lower proportions were seen among participants from Malawi and Botswana (57% and 50%, respectively).

Access to and Seeking of Sexual Health Care Services

Table 3 displays the behavior and attitude of men towards seeking health care services for sexual health needs.

Thirteen percent of men were both diagnosed and treated for a STI. Significantly higher rates of STI diagnosis and treatment were observed among men from Namibia. While over half (56%) had ever been tested for HIV, only 29% had ever been offered a test by a health care provider. Fewer men in Malawi had ever been tested for HIV (35%) compared to men in Botswana (83%) and Namibia (60%). Only 4% of the men were ever diagnosed with HIV or AIDS by a health care provider, but 17% of the population screened as HIV-positive in this study. Overall, 19% of men reported ever being afraid to seek health care services.

Experienced Discrimination

Table 4 presents the frequencies of men, by country, who reported discrimination based on their sexuality. Overall, 5% of the participants were denied health care services and 21% had ever been blackmailed because of their sexuality, with more men reporting sexually based discrimination in Botswana (Fig. 1).

Univariate Associations

Table 5 displays the results of bivariate analyses. Fear of seeking health care was associated with lower odds of knowing HIV can be transmitted through sex with a woman (OR: 0.22, 95% CI: 0.07–0.69). Men who reported ever being denied health care services based on their sexuality, a measure of experienced stigma, were also less likely to

Table 2 Knowledge of HIV and exposure to prevention information among MSM in Malawi, Botswana and Namibia

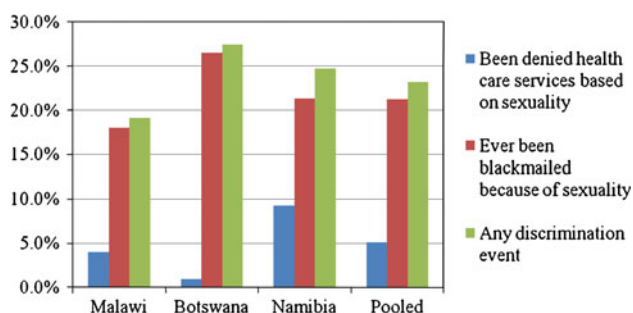
Variable	Malawi % (N)	Botswana % (N)	Namibia % (N)	Pooled % (N)
Can you get HIV from:				
Anal sex with a man?	91.8 (180)	93.1 (108)	94.3 (200)	93.1 (488)
Sex with a woman?	98.5 (197)	99.2 (116)	96.3 (208)	97.8 (521)
Injection drug use?	74.4 (142)	92.0 (104)	91.5 (194)	85.3 (440)
Ever received information on:				
How to prevent getting HIV from a woman?	94.5 (190)	90.6 (106)	95.0 (207)	93.8 (503)
How to prevent getting HIV from a man?	56.5 (113)	50.4 (59)	84.9 (185)	66.7 (357)

Table 3 Sexual health among MSM in Malawi, Botswana, and Namibia: access, utilization, and attitude towards health services

Variable	Malawi % (N)	Botswana % (N)	Namibia % (N)	Pooled % (N)
Ever diagnosed with an STI	8.5 (17)	9.4 (11)	18.5 (40)	12.8 (68)
Ever treated for an STI	7.5 (15)	13.7 (16)	18.5 (40)	13.4 (71)
Ever received recommendation to test for HIV	23.1 (46)	31.9 (36)	33.5 (72)	29.2 (154)
Ever tested for HIV	35.2 (69)	82.9 (97)	59.5 (129)	55.7 (295)
Ever diagnosed with HIV or AIDS	1.0 (2)	3.4 (4)	7.4 (16)	4.1 (22)
Currently being treated for HIV	2.0 (4)	0.9 (1)	8.3 (18)	4.3 (23)
Ever afraid to seek health care services	17.5 (35)	20.5 (24)	18.4 (40)	18.5 (99)

Table 4 Experiences of discrimination on the basis of sexuality among MSM in Malawi, Botswana, and Namibia

Variable	Malawi % (N)	Botswana % (N)	Namibia % (N)	Pooled % (N)
Ever denied health care services based on sexuality	4.0 (8)	0.9 (1)	8.3 (18)	5.1 (27)
Ever been blackmailed because of sexuality	18.0 (36)	26.5 (31)	21.3 (46)	21.2 (113)
Any discrimination event	19.1 (38)	27.4 (32)	24.7 (53)	23.2 (123)

**Fig. 1** Experiences of discrimination on the basis of sexuality among MSM in Malawi, Botswana, and Namibia

know that HIV can be transmitted through sex with a woman (OR = 0.09, 95% CI: 0.03–0.32). No other associations between measures of HIV knowledge and discrimination events were found to be statistically significant.

Factors associated with utilization of and access to health care services are reported in Table 4. Being diagnosed with a STI was associated with greater odds of reporting fear of seeking health care (OR: 2.4, 95% CI: 1.4–4.3) and was also associated with ever being denied health care services on the basis of sexuality (OR: 6.9, 95% CI: 3.0–15.6). Receiving treatment for a STI was associated with greater odds of reporting fear of seeking health care (OR: 2.8, 95% CI: 1.7–4.9) and ever being denied health care services on the basis of sexuality (OR: 7.3, 95% CI: 3.3–16.2). A significant association was observed between ever receiving a recommendation for HIV testing and fear of seeking health care services (OR: 1.9, 95% CI: 1.2–3.0) and was also associated with being blackmailed on the basis of sexuality (OR: 1.8, 95% CI: 1.1–2.8). The variable with the strongest association with discrimination events was treatment for HIV. Being treated for HIV was associated with greater odds of fear of seeking health care services (OR: 3.7, 95% CI: 1.6–8.6; Table 6), ever being denied of health care services on the basis of sexuality (OR: 46.1, 95% CI: 17.3–122.8), and being blackmailed due to sexuality (OR 5.4, 95% CI: 2.2–12.2).

Discussion

This study provides the first data on the associations of discrimination towards MSM with knowledge of HIV

transmission, access to and utilization of health care services in Namibia, Malawi, and Botswana. Characterizing the relationship between stigma and health care seeking practices and attitudes can inform the development of HIV prevention interventions targeting MSM from the individual to the structural levels.

In this study, there was a strong association between ever experiencing discrimination, including denial of health care services and blackmail based on sexuality, and fear of health care services. These results concur with earlier studies from Lane et al. who reported that verbal abuse targeting MSM from health care workers in South Africa had a negative influence on the appropriate use of health care services [15]. Here, the diagnosis of a STI was also associated with greater odds of reporting fear of seeking health care and was also associated with ever being denied health care services on the basis of sexuality. Similarly, receiving treatment for a STI was also associated with greater odds of reporting fear of seeking health care and ever being denied health care services on the basis of sexuality. As both of these are markers of health care usage, there is an assumption that any interaction with the health care system for MSM results in increased odds of the fear or denial of health care services in these settings. These results also concurred with the results of Lane et al. [15] who reported that MSM seeking STI services avoided seeking STI services following abuse and non-gay identified MSM elected not to disclose sexual practices to healthcare workers. It is important to note, the lowest proportions of men seeking and utilizing HIV and STI services were seen among our participants from Malawi, yet it was also among these participants where the greatest proportion screening positive for HIV was observed among the three countries. This observation highlights the need for interventions targeting uptake of services, particularly HIV testing.

For MSM living with HIV, experienced stigma from health care workers is especially relevant given the unavoidable interactions with the health care system. There was a strong relationship observed here between receiving treatment for HIV and experiences of discrimination events, reflecting the layered stigmatization that often exists for MSM living with HIV. Moreover, treatment for HIV was strongly associated with being blackmailed due to sexuality, ever being denied of health care services on the basis of sexuality, and fear of seeking health care services.

Table 5 Univariate analysis of the associations between fear and experienced discrimination with knowledge of HIV prevention methods and exposure to HIV education among MSM in Malawi, Botswana, and Namibia

Variable	Fear of seeking health care				Denied health care services				Blackmailed			
	Odds ratio (95% CI)				Odds ratio (95% CI)				Odds ratio (95% CI)			
	Malawi	Botswana	Namibia	Pooled	Malawi	Botswana ⁺	Namibia	Pooled	Malawi	Botswana	Namibia	Pooled
	Z-score				Z-score				Z-score			
Knowledge of HIV transmission												
Through anal sex with a man	0.58 (0.17-1.92)	1.79 (0.21-15.33)	0.68 (0.18-2.64)	0.77 (0.34-1.75)	0.24 (0.05-1.32)	0.04 (0.003-0.45)	0.93 (0.11-7.70)	0.38 (0.13-1.18)	0.94 (0.25-3.50)	0.58 (0.13-2.60)	3.24 (0.41-25.74)	1.14 (0.49-2.69)
	-0.89	0.53	-0.56	-0.62	-1.63		-0.07	-1.67	-0.09	-0.71	1.11	0.31
Through sex with a woman	0.42 (0.04-4.76)	0.13 ⁺ (0.01-1.47)	0.21 (0.50-0.88)	0.22 (0.07-0.69)	0.07 (0.01-0.92)	0.004 (0.0002-0.10)	0.23 (0.04-1.26)	0.09 (0.02-0.32)	0.43 (0.04-4.93)	0.74 ⁺ (0.07-8.49)	0.81 (0.16-4.18)	0.81 (0.22-3.04)
	-0.70	-2.14*	-2.14*	-2.59*	-2.02*		-1.69	-3.73**	-0.67		-0.25	-0.31
Through injection drug use	0.80 (0.35-1.82)	0.89 (0.17-4.58)	1.18 (0.32-4.28)	0.93 (0.51-1.73)	0.57 (0.13-2.47)	0.04 (0.004-0.52)	1.54 (0.19-12.31)	0.74 (0.27-2.02)	1.42 (0.58-3.51)	1.35 (0.27-6.90)	0.51 (0.18-1.44)	1.13 (0.61-2.08)
	-0.53	-0.15	0.25	-0.22	-0.75		0.40	-0.59	0.76	0.36	-1.27	0.39
Know how to prevent HIV through												
Sex with a woman	0.23 (0.06-0.79)	2.77 (0.34-22.79)	1.01 (0.21-4.87)	0.69 (0.30-1.58)	0.15 (0.03-0.84)	0.23 (0.02-2.69)	0.38 (0.08-1.91)	0.35 (0.11-1.08)	0.36 (0.10-1.29)	0.60 (0.16-2.20)	0.45 (0.13-1.61)	0.44 (0.21-0.93)
	-2.33*	0.95	0.01	-0.87	-2.16*		-1.18	-1.83	-1.57	-0.77	-1.22	-2.15*
Sex with a man	0.67 (0.32-1.39)	0.79 (0.32-1.95)	0.81 (0.32-2.01)	0.75 (0.48-1.19)	0.76 (0.18-3.13)	2.00 (0.18-22.66)	3.26 (0.42-25.35)	2.27 (0.85-6.11)	0.41 (0.20-0.86)	1.07 (0.47-2.43)	1.01 (0.41-2.49)	0.73 (0.47-1.12)
	-1.08	-0.50	-0.46	-1.22	-0.38		1.13	1.63	-2.35*	0.15	0.01	-1.44
Any knowledge or exposure to HIV education	0.67 (0.31-1.46)	1.54 (0.32-7.44)	0.97 (0.34-2.75)	0.88 (0.51-1.53)	0.25 (0.06-1.10)	0.07 (0.01-0.83)	1.00 (0.21-4.67)	0.51 (0.22-1.21)	1.31 (0.57-3.01)	0.95 (0.27-3.29)	0.88 (0.33-2.38)	1.19 (0.68-2.07)
	-1.00	0.54	-0.07	-0.44	-1.83		0.00	-1.53	0.63	-0.08	-0.24	0.62

⁺ perfectly predicted, OR calculated by adding a constant to 2 × 2 table [25]

* *P* < 0.05; ** *P* < 0.001

Table 6 Univariate analysis of the associations between fear and experienced discrimination with sexual health and use of services among MSM in Malawi, Botswana, and Namibia

Variable	Fear of seeking health care				Denied health care services				Blackmailed			
	Odds ratio (95% CI)				Odds ratio (95% CI)				Odds ratio (95% CI)			
	Malawi	Botswana	Namibia	Pooled	Malawi	Botswana ⁺	Namibia	Pooled	Malawi	Botswana	Namibia	Pooled
Diagnosed with an STI	5.33 (1.89–15.07)	1.52 (0.37–6.22)	1.92 (0.86–4.28)	2.44 (1.39–4.29)	9.48 (1.93–46.63)	4.42 (0.37–52.41)	5.35 (1.97–14.56)	6.86 (3.02–15.56)	1.50 (0.46–4.90)	2.56 (0.72–9.10)	1.17 (0.51–2.68)	1.48 (0.82–2.66)
Treated for an STI	3.16* 9.12 (2.99–27.75)	0.58 1.96 (0.61–6.31)	1.6 1.92 (0.86–4.28)	3.10* 2.84 (1.65–4.91)	2.77* 9.76 (2.06–46.25)	12.75 (1.09–148.89)	3.29* 5.35 (1.97–14.56)	4.60** 7.27 (3.25–16.23)	0.67 0.30 (0.04–2.39)	1.46 2.50 (0.84–7.41)	0.36 1.57 (0.71–3.46)	1.30 1.45 (0.82–2.57)
Received recommendation for an HIV test	3.89** 1.99 (0.90–4.41)	1.13 1.50 (0.58–3.88)	1.6 2.08 (1.03–4.19)	3.74** 1.91 (1.21–3.01)	2.87* 3.63 (0.87–15.16)	2.87* 4.33 (0.38–49.36)	3.29* 1.42 (0.52–3.90)	4.84** 2.18 (0.98–4.82)	-1.13 2.23 (1.02–4.86)	1.65 2.43 (1.02–5.77)	1.12 1.16 (0.58–2.32)	1.27 1.77 (1.14–2.75)
Ever tested for HIV	1.71 1.24 (0.58–2.68)	0.84 0.53 (0.18–1.57)	2.06* 1.11 (0.55–2.26)	2.77* 1.08 (0.69–1.69)	1.77 1.11 (0.26–4.79)	0.43 (0.04–5.00)	0.68 2.53 (0.80–7.95)	1.92 1.62 (0.72–3.69)	2.01* 1.49 (0.71–3.13)	2.00* 1.10 (0.36–3.32)	0.43 0.53 (0.27–1.02)	2.54* 1.02 (0.67–1.55)
Diagnosis of HIV or AIDS	0.55 1.51 ⁺ (0.15–14.93)	-1.14 1.30 (0.13–13.13)	0.29 3.96 (1.38–11.38)	0.36 2.64 (1.07–6.47)	0.14 7.92 ⁺ (0.74–84.79)	11.30 (0.87–146.49)	1.58 2.85 (0.73–11.10)	1.16 3.34 (0.92–12.09)	1.04 4.79 (0.29–78.55)	0.17 2.90 (0.39–21.51)	-1.89 2.39 (0.82–6.95)	0.09 2.73 (1.14–6.56)
Treatment for HIV	25.94 ⁺ (2.93–229.49)	7.83 ⁺ (0.68–90.05)	1.81 (0.61–5.41)	3.66 (1.55–8.60)	114.00 (10.02–1296.39)	29.00 (1.80–466.44)	29.84 (9.28–95.98)	46.06 (17.27–122.80)	4.76 (0.65–35.01)	5.61 ⁺ (0.49–64.09)	5.66 (1.98–16.19)	5.43 (2.23–13.23)
HIV seropositive	1.79 (0.65–4.95)	1.92 (0.52–7.09)	1.34 (0.43–4.10)	1.65 (0.86–3.17)	1.91 (0.23–16.00)	0.51 (0.04–5.87)	0.69 (0.18–2.54)	1.21 (0.41–3.59)	0.78 (0.34–1.82)	0.48 (0.18–1.25)	2.36 (0.68–8.20)	0.91 (0.53–1.55)
Any interaction with health care	1.13 3.68 (1.73–7.82)	0.98 1.80 (0.71–4.52)	0.51 2.28 (1.13–4.60)	1.52 2.55 (1.63–3.98)	0.60 19.08 (2.29–158.90)	2.96 (0.26–33.57)	-0.56 3.74 (1.28–10.90)	0.34 6.38 (2.53–16.11)	-0.56 2.23 (1.06–4.70)	-1.51 2.44 (1.04–5.71)	1.35 1.71 (0.88–3.31)	-0.36 2.08 (1.36–3.18)
	3.39* 1.25	2.31* 1.25	4.11** 2.31*	4.11** 2.73*	2.73* 2.73*	2.41* 2.41*	3.92** 3.92**	2.12* 2.12*	2.05* 2.05*	1.58 1.58	3.38* 3.38*	3.38* 3.38*

Diagnosis of STI, HIV or AIDS and treatment for STI or HIV are self-reported; STI sexually transmitted infection, ⁺ perfectly predicted, OR calculated by adding a constant to 2 × 2 table [25]* $P < 0.05$; ** $P < 0.001$

Encouragingly, men in all three countries reported high levels of knowledge of HIV transmission. While only 67% of men reported receiving information on how to prevent HIV transmission from a man, 93% of men still knew that HIV could be transmitted through sex with a man. Ntata and colleagues reported that in 2006 only 17% of MSM in Malawi had been exposed to MSM specific HIV prevention messages [13]. Given the work of the Center for Development of People in Malawi, this had improved significantly by 2008 when this study took place. Neither of these studies have adequately assessed the quality and quantity of information delivered to MSM which is a key determinant of the goal of these education initiatives; safer sex between men. Previous studies have indicated that education messaging does result in safer sex, but these beneficial effects are subject to decay [26]. Future studies are required to assess the quality and benefit of education messages for MSM in terms of sexual practices, and ultimately burden of disease.

MSM have different HIV risks as compared to heterosexual men suggesting that the consistent association between discrimination events and STI variables is reflective of the role of stigma in the general sexual health of MSM. Clinicians likely will not assess for anal HPV infection, among other STIs, among men unless they are aware that these men are at specific risk for these infections. Given emerging evidence of increased risk of HIV transmission associated with high-risk serotypes of HPV, fear of disclosure of same sex practices is relevant to HIV risk in these men [27]. Moreover, fear of seeking health services for these men can also result in anal cancer risks, for which MSM are at significantly elevated risk secondary to anal HPV infections.

While this study draws strength from being able to innovatively explore the relationship between stigma and health care access among MSM, there are also numerous limitations which need to be explored. Direction of causality cannot be established in this study given that it is cross-sectional. Moreover, there may be limited generalizability to the entire population of MSM in these countries given the sampling methodology. The selection bias involved in snowball sampling likely accrued men that had overlap with the men involved with the CBOs in these countries which would potentially overestimate the levels of HIV-related knowledge among MSM. In addition, levels of stigma may be underestimated in comparison to the entire population as the men who took part here are still willing to disclose their same-sex practices to the research team. This study was not powered a priori to assess the role of stigma, which may have resulted in type II error in these analyses including missing relevant predictors of stigma. Reporting bias may play a role given that the interviews were conducted in face-to-face with project staff potentially underestimating the level of

HIV risk practices in this population. Researchers attempted to minimize any reporting biases by emphasizing confidentiality and anonymity.

The findings presented in this study highlight high levels of fear among MSM in seeking health services and experienced discrimination. These results warrant a more detailed assessment of the role of stigma on health care seeking practices of MSM, the ability to provide comprehensive prevention services, and ultimately sexual practices and relationship patterns among MSM in Malawi, Namibia, and Botswana. Stigma and discrimination in health care settings includes both direct (refusal to see patients, derogatory labeling) and indirect (lack of sensitivity and lack of knowledge) behaviors. Assessments of stigma among MSM need to include comprehensive analyses on multiple facets of stigma including upstream and downstream factors. These data are needed to inform interventions targeting MSM to improve levels of condom use during sex with men, but these data are equally important for interventions targeting health care staff, and society more broadly, to decrease levels of discrimination targeting MSM hence facilitating access of these men to available health care services [28].

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