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The synergistic impact of sexual stigma and psychosocial well-being on HIV testing: A mixed-methods study among Nigerian men who have sex with men

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Abstract

Although sexual stigma has been linked to decreased HIV testing among men who have sex with men (MSM), mechanisms for this association are unclear. We evaluated the role of psychosocial well-being in connecting sexual stigma and HIV testing using an explanatory sequential mixed methods analysis of 25 qualitative and 1,480 quantitative interviews with MSM enrolled in a prospective cohort study in Nigeria from March/2013-February/2016. Utilizing structural equation modeling, we found a synergistic negative association between sexual stigma and suicidal ideation on HIV testing. Qualitatively, prior stigma experiences often generated psychological distress and

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Compliance with Ethical Standards

Conflicts of Interest

The authors declare that they have no conflict of interest.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

Approval for the study was obtained by the Federal Capital Territory Health Research Ethics Committee, the University of Maryland Baltimore Institutional Review Board (IRB), and the Walter Reed Army Institute of Research IRB.

Disclaimer

The views expressed are those of the authors and should not be construed to represent the positions of the U.S. Army, the Department of Defense, or the Department of Health and Human Services. The investigators have adhered to the policies for protection of human subjects as prescribed in AR-70.

perceptions of feeling unsafe, which decreased willingness to seek services at general health facilities. MSM reported feeling safe at the MSM-friendly study clinic but still described a need for psychosocial support services. Addressing stigma and unmet mental health needs among Nigerian MSM has the potential to improve HIV testing uptake.

Keywords

Men who have sex with men; stigma; latent class analysis; HIV testing; suicidal ideation; mental health

INTRODUCTION

Knowledge of one's HIV status is the first target of the UNAIDS 90-90-90 treatment goals and is important because it can lead to behavior change that is protective of oneself and others.[1] Attainment of the 90-90-90 goals may be especially difficult among men who have sex with men (MSM) due to lower levels of access to health programming globally.[2] It is especially important to understand barriers for MSM that impede achievement of the UNAIDS targets, such as sexual stigma and poor mental health, and which may inhibit engagement with HIV testing.[3] Currently, these two factors and their combined effect on HIV testing among MSM are insufficiently studied, especially in sub-Saharan African (SSA) countries including Nigeria. Nigeria has the second highest number of people living with HIV/AIDS globally and it is estimated that only 34% of Nigerians living with HIV know their HIV status.[2] There are an estimated 26,014 MSM in Nigeria, many of whom are facing high levels of undiagnosed HIV and sexual stigma.[4–6] In January 2014, Nigeria passed a law further criminalizing same-sex practices, the Same Sex Marriage (Prohibition) Act of 2013.[7] A study of its effects found that MSM reported fear of seeking healthcare and avoidance of healthcare at significantly higher levels post-law as compared to pre-law. [4]

Sexual stigma is the co-occurrence of labeling, stereotyping, separation, status loss, and discrimination within a power imbalance specific to sexual minorities and it manifests at the individual level as enacted, felt, and internalized stigma.[8,9] Enacted stigma refers to overt behavioral expressions of stigma such as verbal harassment or physical violence. Felt stigma refers to expectations or fear of stigma in different situations regardless of whether the individual endorses or accepts stigma as legitimate. Internalized stigma is the personal acceptance of stigma as a part of one's own value system and self-concept. Greater sexual stigma is associated with less HIV testing among MSM in several large multi-country studies,[10–13] but few quantitative studies exist that are specific to MSM in SSA. Qualitative studies of MSM in SSA have repeatedly found that sexual stigma discouraged MSM from seeking HIV testing and care[14–17]but it is unclear through which mechanisms sexual stigma negatively impacts HIV testing. Better understanding of these mechanisms would help explain MSM's decisions to test and enable development of effective interventions.

MSM with poor mental health may be less capable of engaging with HIV testing.[18–21] Victimization of MSM, a type of enacted stigma, often affects general psychological

processes within victims and causes feelings of hopelessness, lower self-esteem, and fatalism which may inhibit protective health behavior.[9,22] Victimization interferes with everyday processes through which individuals are able to feel secure, that “it can’t happen to me,” and with perceptions of the world as an orderly and meaningful place.[23] Sexual stigma may cause additional stressors which lead to hypervigilance.[9,24] Such hypervigilance may cause MSM to avoid settings likely to exacerbate sexual stigma such as health care facilities.[20,25,26]

Suicidal ideation, an indicator of poor mental health, may partly explain the relationship between sexual stigma and engagement with HIV testing.[3,26] Suicidal ideation is associated with suicide, which accounts for 50% of all violent deaths among men globally. [27] Suicidal ideation has not been assessed among Nigerian MSM, but reported levels are high among MSM in South Africa,[28] Uganda,[29] and Swaziland.[20] Stigma-induced suicidal ideation among MSM in SSA may inhibit HIV testing through its association with other cognitive processes including depression, lower self-esteem, and hopelessness.[30,31] But, studies assessing suicidal ideation’s impact on HIV testing in this population are lacking.

We conducted a mixed methods analysis to explore the interrelationship of sexual stigma and suicidal ideation with HIV testing by assessing: 1, if sexual stigma was directly associated with HIV testing and with suicidal ideation and if suicidal ideation was directly associated with HIV testing (main effects aim); 2, if suicidal ideation moderated the relationship between sexual stigma and HIV testing (interaction aim); and 3, how sexual stigma and psychological processes impacted HIV testing (qualitative aim).

METHODS

Study design

We utilized an explanatory sequential mixed methods study design with quantitative data collected and analyzed first, followed by collection and analysis of the qualitative data. The purpose of the quantitative phase was to assess suicidal ideation as a mechanism linking sexual stigma to HIV testing in both Lagos and Abuja, Nigeria. The purpose of the qualitative phase was to gain a better understanding of how sexual stigma impacted health and access to HIV services, as well as to further explore findings from the quantitative analysis at the Abuja site only. Written informed consent was obtained from all participants. In Abuja, the TRUST/RV368 study is co-located with the International Center on Advocacy and Rights to Health (ICARH), an MSM community-based organization (CBO) that provides health services, peer education training, workshops on HIV and STIs, and advocacy on behalf of its clients. The organization as a whole, including services provided by both the TRUST/RV368 study and ICARH, is referred to as TRUST/ICARH.

Quantitative phase

The TRUST/RV368 study is a prospective cohort study that utilizes respondent driven sampling (RDS) to recruit MSM into HIV prevention, treatment, and care services in Abuja and Lagos, Nigeria that has been previously described.[34] Eligibility criteria includes

individuals who: 1) were assigned male sex at birth, 2) are at least 16 years old for the Abuja site and at least 18 for the Lagos site, 3) have a history of insertive or receptive anal sex within the last year, 4) provide informed consent, and 5) present a valid RDS recruitment coupon. From March 2013 to February 2016, 1,480 eligible participants completed a structured questionnaire through face-to face interviews as previously described[32] and all of these participants were included in the analyses for the quantitative component of this paper.

Measures

Nine indicators of stigma were included as an aggregate measure of stigma.[33] The aggregate stigma measure included any lifetime experiences of seven types of enacted stigma (family made discriminatory remarks, rejection from friends, refusal from police to protect, verbal harassment, blackmail, physical violence, and rape) and two types of felt stigma (fear of seeking health care and fear of walking in public) that participants felt were due to the fact that they had sex with men. These indicators have been found to be common among MSM in the US, West Africa, and Southern Africa.[34] Suicidal ideation was measured by asking “Have you ever felt like you wanted to end your life?” HIV testing was measured by asking “Have you ever been tested for HIV infection?” Having ever received an HIV test during one’s lifetime remains relevant in countries such as Nigeria where reported levels of HIV testing are low.[35]

Participant characteristics theorized to be associated with sexual stigma were included as covariates of sexual stigma: age (<25 vs 25), self-reported gender (male, female, both male and female), RDS recruitment wave (dichotomized into first half vs. second half of waves), and knowledge of HIV transmission risk. For knowledge of HIV transmission risk, participants were asked “Which type of anal sex position puts you most at risk for HIV infection? Insertive, receptive, or insertive and receptive carry equal risk?”

Analyses

Latent class analysis was conducted with the nine indicators of stigma, producing three stigma classes of low (n=633), medium (n=663), and high (n=184) stigma. Separate models were run to assess the direct relationships between sexual stigma class and suicidal ideation and stigma class and HIV testing, adjusting for age, self-reported gender, RDS recruitment wave, and knowledge of HIV transmission risk, using latent class with distal outcome modeling.[36] These models, and the subsequent models were run excluding those previously aware of their HIV positive status at enrollment and clustering for city using a sandwich estimator to account for the potential correlation between participants of the same city. We excluded those already aware of their HIV diagnosis in the quantitative analyses in order to minimize the possibility that suicidal ideation was experienced as a result of stigma associated with their HIV diagnosis and because these individuals have by definition all received an HIV test prior to enrollment. HIV-related stigma has been found to be associated with mental health distress among African MSM[37] and with mental health distress among individuals living with HIV/AIDS in Nigeria.[38]

Latent transition analysis (LTA) was utilized to assess direct associations between suicidal ideation and HIV testing, adjusting class by participant characteristics. HIV testing was treated as a perfectly measured latent variable in order to allow for the assessment of the relationship between stigma class and HIV testing. When doing LTA with cross-sectional data, transition probabilities convert in their meaning to signify the probability of different class combinations (e.g. the probability that individuals in the high stigma class have also had an HIV test).[39]

Figure 1 depicts the final analytical model. A latent stigma class variable, adjusted for participant characteristics, was the primary predictor variable. HIV testing was then regressed on stigma class and on suicidal ideation separately (main effects aim). Lastly, HIV testing was also regressed on an interaction between suicidal ideation and stigma class (interaction aim). Interaction results help indicate “when” and “for whom” a variable most strongly predicts an outcome and must be accounted for as main effects tell an incomplete story in the presence of significant interaction.[40] Quantitative analyses were conducted using STATA Version 13 (StataCorp, College Station, TX) and MPlus Version 7.4.[36]

Qualitative phase

Data Collection—In July and August 2016, 25 MSM from the Abuja site only (TRUST/ICARH) were interviewed using a semi-structured interview guide. This included 22 participants strictly from the cohort, 2 staff members who were part of the cohort, and one who was strictly a staff member. We oversampled participants who were either in the high or medium stigma classes, based on the quantitative analysis, to ensure that they could speak about stigma experiences. The interviews focused on five main topics: treatment of MSM by society, disclosure of same-sex practices, MSM social networks, mental health, HIV testing, and engagement with HIV care for those living with HIV. Semi-structured in-depth interviews were conducted in English and were digitally recorded and transcribed. Due to resource constraints we could not include participants from the Lagos site or participants who did not speak English.

Analyses—In order to explore themes in the qualitative data independent of the quantitative findings, an additional researcher that was not part of the quantitative analysis was brought into the project for the qualitative phase. This researcher and the first author double-coded 12 interviews, developed a coding scheme using an inductive approach, and discussed these codes with the other co-authors to confirm consistency in overall interpretation. The remaining transcripts were coded separately using MAXQDA and discussed throughout the analysis period to identify emerging themes. Transcripts were analyzed using thematic analysis.[41] The qualitative data were used to explore the interrelationship between stigma, psychosocial well-being, and HIV testing (qualitative aim).

RESULTS

Sample characteristics

Table 1 shows that the full sample of participants were primarily under age 25, identified their gender as male, had lower knowledge of HIV transmission risks, were primarily in the low or medium stigma classes, were more likely to have not experienced suicidal ideation, and most had had an HIV test prior to study enrollment. The qualitative subsample differed in that they were more likely to be knowledgeable about HIV transmission risk, to be in the medium or high stigma classes, to have experienced suicidal ideation, to have had an HIV test, and they were older on average than the quantitative sample.

Quantitative Findings

Main effects—The direct effect of stigma class on HIV testing was not statistically significant (Table 2). There was a strong dose-response association between stigma class and suicidal ideation (17%, 31%, 50%, overall χ^2 p-value<.001). Suicidal ideation was associated with a 21% lower odds of having been tested for HIV, irrespective of the stigma class of any participant (adjusted odds ratio (AOR) .79, CI=.74–.86) (Figure 1).

Interaction effects—Elevated stigma in conjunction with suicidal ideation had a synergistic effect on the reporting of HIV testing. Being in the high stigma class and reporting suicidal ideation was associated with a 35% lower odds of HIV testing as compared to being in the low stigma class and reporting suicidal ideation, although this did not reach significance (AOR .65, CI=.20–2.11). Being in the medium stigma class and reporting suicidal ideation was significantly associated with a 54% lower odds of HIV testing as compared to being in the low stigma class and reporting suicidal ideation (AOR .46, CI=.39–.55).

Qualitative Findings—The qualitative findings provided context for the interaction between sexual stigma and mental health, with stigma leading to emotional distress, avoidant behavior, suicidal ideation, and felt stigma in some participants that may have resulted in less engagement with HIV testing. The most common impact on HIV testing was that participants described fear of going to a general public health facility. In contrast, they felt safe and accepted at TRUST/ICARH. Participants learned of TRUST/ICARH through MSM they knew and who encouraged them to attend. Although attending TRUST/ICARH reduced sexual stigma, participants and staff often expressed a need for expanded psychosocial support.

Emotional distress and suicidal ideation following sexual stigma: The emotional distress of sexual stigma sometimes led to avoidant behavior and enduring feelings of trauma. This participant lost his job because he engaged in sex with men and then went through a period of homelessness. When asked why he did not get an HIV test after starting to work at TRUST/ICARH, he said:

“Even when I started this job, it didn’t just mean, it didn’t just leave my memory, you know. I’m just remembering a lot of things that happened right now. It wasn’t intentional but all these things happened subconsciously, so it was over time, it was

when I begin to interact with people, seeing other people, travelling. I saw life differently. That was when life meant something really to me, so it took me time for me to get rid of those mentality.” (Staff member)

For another participant who was violently blackmailed and extorted, the experience led to avoidant behavior and isolation:

“Anytime I’m alone, I have the trauma in my head, every minute, it comes on and scares me out. Even when I get a call from someone ‘I got your number from someone, I want us to meet somewhere’ I don’t really go out. I hardly go out, even till now, I find it really difficult for me to go places.” (TRUST/RV368 Participant).

Suicidal ideation was most commonly mentioned when participants felt they received no support after an enacted stigma experience. One participant described his feelings after he and his roommates were physically assaulted and his house was set on fire by several men who suspected they were MSM:

“I feel like dying that time because I don’t have money to do anything. I cannot go to my village and tell them, see what happened so that they will help me with another money. You understand, because if you go to the village, ah, see, see, see, they will hear, you understand, so I feel like, in fact, I don’t know, I feel like hanging myself then.” (TRUST/RV368 Participant)

Another participant described his feelings after being stigmatized by his family when they learned he engaged in sex with men:

“I feel no good about it, because, when you are, when you are rejected by people that you are supposed to be happy with, I don’t think, then I feel like, what am I still doing? I feel like committing suicide, so that everything would just stop.” (TRUST/RV368 Participant)

HIV testing at general public health facilities: Most participants had not received HIV testing at a public facility. The minority that had done so reported receiving adequate treatment, but almost none of them disclosed that they engaged in same-sex practices. This resulted in missed opportunities to provide HIV testing and counseling appropriate to same-sex practices. One participant said:

“I was comfortable with her based on, based on heterosexual, because I didn’t go there as an MSM. I went as a heterosexual to do HIV test, so I was comfortable with her, you get? I wouldn’t be comfortable, I wouldn’t tell her that am MSM because I wouldn’t know how she would react.” (TRUST/RV368 Participant and Staff member)

A number of participants described not feeling safe at such facilities due either to fear of the health provider learning that they were MSM or due to fears their information would not remain confidential. Having experienced and/or witnessed stigma in other settings, participants experienced considerable fear of being further rejected, devalued, or ostracized. This fear existed despite almost no reports that they had experienced enacted stigma in public health facilities. In reflecting on his experience at a public facility where he was questioned about his presumed girlfriend, one participant said:

“I feel not safe, I still feel not safe. I feel like, maybe with time, let me go where I will be safe, and where I can open up to my doctor and all that. That is why I came back here [TRUST/ICARH].” (TRUST/RV368 Participant)

Another participant who used to avoid health care facilities said:

“Whenever I’m sick, and I need to go to the hospital, I used to be scared. What if this doctor find out that I’m gay? So I wouldn’t go to the hospital. I would just stay at home and be fine.” (TRUST/RV368 Participant)

HIV testing at TRUST/ICARH: Participants described preferring the TRUST/ICARH clinic because they felt safe and accepted. This participant felt that he could open up to the doctors there:

“Anything that has to do with sexual diseases or testing, I won’t want to go to just any hospital. I would rather, I prefer to come here, because I feel safer, able to talk to the doctor, oh, this is what is going on, this is what I did.” (TRUST/RV368 Participant)

One participant who otherwise avoided MSM in public described how he felt when at TRUST/ICARH:

“Anytime I come here, I will feel free like my house.” (TRUST/RV368 Participant)

Another participant felt safe at TRUST/ICARH because many of the staff are MSM:

“Everyone here in ICARH is MSM, is gay, apart from the doctors and nurses, the staff of ICARH are all gay, so I feel it is very safe for me to do my test.” (TRUST/RV368 Participant)

Another participant stated his feelings simply as:

“This is my organization where I belong.” (TRUST/RV368 Participant)

Many participants described how it was an MSM that linked them to TRUST/ICARH, highlighting the importance of peer social networks for outreach. One participant said:

“Is an MSM that told me that and gave me the courage. He counseled me very well, please go and know your status, and I tell him don’t worry I will go. The next day I went and I do my test. He told me that am HIV positive.” (TRUST/RV368 Participant)

Ancillary benefits of attending the TRUST/ICARH clinic: There were additional mental health and other benefits to attending TRUST/ICARH, including receiving non-HIV health care, having a safe space to meet other MSM, and being educated on HIV. For some, being a peer educator or staff member gave them a sense of pride and improved their understanding of how MSM can protect their health, suggesting one avenue of resilience that could be made more widely available to Nigerian MSM. Working at TRUST/ICARH helped one participant resolve his feelings after being stigmatized and gave him a sense of pride in what he did:

“Being a health worker, a health worker and also an activist, I see myself also as an activist because I also talk to people, counsel people on issue of stigma and discriminations, security and tips and safety. So I was able, I think that actually was able to help me. I had like, okay, its one of those things that happens in life, so I just had to forget about it and move on in my life” (TRUST/RV368 Participant and Staff member)

A continuing need for psychosocial services: Participants believed that the clinic should be expanded to be more comprehensive, commonly citing a need for psychosocial services. One participant stated:

“We have a lot of victims of suicide, we do. We have a lot of victims of depression, people who are depressed and they need to talk to either a psychologist or someone who can provide a psychosocial counseling for people. This would also help build self-esteem, but the issue of support group would also go a long way of helping this.” (Staff member)

DISCUSSION

This study demonstrated high levels of suicidal ideation among Nigerian MSM with suicidal ideation acting as one mechanism by which sexual stigma contributed to lower levels of HIV testing. The qualitative results reinforced these findings by suggesting that sexual stigma could lead to suicidal ideation and long-lasting trauma. Lack of support following sexual stigma was especially common and exacerbated poor mental health. This study enriches the existing research by exploring how and under what conditions sexual stigma may promote less HIV testing, suggesting the potential for multiple avenues of intervention.

The levels of suicidal ideation were very high, much higher than the 3.2% previously reported for Nigerian adults,[42] suggesting that suicidal ideation may be a significant health issue affecting MSM in Nigeria as has been found elsewhere in SSA.[20,28,29] Such high levels of suicidal ideation are alarming as such thoughts are strongly linked to suicide[42] and because it was found that suicidal ideation was associated with a significantly lower odds of having received an HIV test. Given the known benefits of HIV testing, our study findings highlight that poor mental health may drive HIV infection by reducing HIV testing. [1] Many studies have focused on assessing the impact of poor mental health on engagement with the HIV Care Continuum.[43] However, there is a need to better understand how poor mental health impacts uptake of HIV prevention and testing services among those not diagnosed with HIV.

Qualitatively, participants’ experiences highlighted an acute need for mental health services following stigma. Given the risks of disclosure, MSM may not be able to rely on traditional sources of support, such as family. One participant made an explicit link to the enduring and unintentional negative impacts of stigma on HIV testing, even despite becoming a staff person at an HIV services organization. More common, though, was the general perception that HIV testing at facilities for the public was unsafe. This was often a result of victimization where felt stigma, or the perception that stigma might occur, induced avoidant behavior even though enacted stigma within health facilities was rarely reported. This

contradiction between felt and enacted stigma has been previously reported[44] and it highlights that individuals may transfer enacted stigma in other settings into felt stigma in specific settings.

Addressing both felt or perceived and enacted stigma is important and there are a number of promising strategies that could be adapted to the Nigerian context. Sensitization training for providers can be combined with legal and health literacy programs that teach sexual minorities about their rights in health care facilities.[45,46] A trauma-informed care approach can be integrated throughout an organization or study site servicing MSM. Such an approach would recognize the connection between trauma and health, address it early throughout the organization, and take “universal precautions” by assuming personal experiences of trauma among all clients.[47,48] Combining trauma-informed care with cognitive behavioral therapy interventions that are adapted for implementation in SSA are needed.[49–51] There are only .10 psychiatrists per 100,000 population in Nigeria as compared to 12.40 in the US.[52] This makes mental health screening and treatment for Nigerian MSM difficult and it requires creative solutions such as a greater utilization of lay health workers.[53,54]

In this study trusted MSM peers were important to linking participants to an MSM-friendly, non-stigmatizing center, TRUST/ICARH, where many felt safe and accepted. This increased their comfort with engaging in HIV services. Despite this, there was still a strongly emphasized need for enhanced psychosocial support. Task shifting to lay health workers, including utilizing peers, can be employed to deliver stigma and mental health interventions. [55] Peer-driven interventions for MSM have been associated with improved HIV knowledge, safer sexual behaviors, increased HIV testing, and reduced feelings of loneliness, social isolation, and low self-esteem.[56–59] Peer educators, a type of lay health worker, can drive demand generation and encourage trust in HIV testing and care services, and peer educators can be leveraged to deliver innovative programs such as task-sharing and HIV self-testing.[60] Task-sharing models that maximize the utility of lay, peer health workers in coordination with mental health professionals[61] holds promise for lower-resourced settings. It would require linkages to a small number of mental health professionals that are sensitized to issues impacting sexual minorities and who could treat MSM whose mental health needs surpass the capacity of what is offered by lay health workers.

In 2016, the WHO recommended HIV self-testing (HIVST) as an additional approach and HIVST has been found to increase the uptake of testing among MSM, increase the frequency of testing, and has been able to reach first-time test takers.[62,63] HIVST may be an empowering alternative for Nigerian MSM as it affords greater privacy, convenience, control over the testing process, and it can reach MSM unwilling or unable to go to a clinic as is commonly the case in places with widespread sexual stigma. A recent review of strategies to increase HIV testing among MSM that assessed 78 studies found only four that took place in Africa.[64] The four studies highlighted the potential effectiveness of using social networking strategies (SNS) to reach African MSM, but none conducted HIVST. An especially effective combination may be to use SNS and internet recruitment with HIVST in order to optimize both reach and delivery of HIV testing services. Studies of Nigerian MSM

have found high utilization of online dating sites, high proportions of participants who identified as bisexual, and low prevalences of disclosure of same-sex behavior,[33,65,66] particularly among MSM exposed to sexual stigma, and thus a combined recruitment approach with HIVST could reach MSM who fear stigma at testing facilities. A study that collaborated with an MSM community-based organization (CBO) in Kenya to deliver HIVST using peer educators resulted in high levels of opt in and reached a higher percentage of undiagnosed MSM than did clinic-based testing.[67]

There are several limitations to this study. Although the sexual stigma measure included a range of stigma experiences, it is possible that important manifestations of stigma were not included. It is unclear what caused suicidal ideation in the quantitative data and whether stigma and suicidal ideation preceded HIV testing due to the cross-sectional design. Although it is uncertain whether sexual stigma caused suicidal ideation, we excluded those already aware of their HIV diagnosis in the quantitative analyses, thereby minimizing the possibility that suicidal ideation was experienced as a result of diagnosis. The cross-sectional nature of the data may also explain the overall lack of association between sexual stigma and HIV testing. The substantially different sample sizes for the high (n=195) and medium (n=663) stigma classes may have accounted for the lack of significance found for the interaction between high stigma and suicidal ideation on HIV testing. The generalizability of the findings from the quantitative analysis to MSM in high-income countries may be limited. Access to mental health screening and treatment may be more feasible for MSM in higher-income settings. Lastly, the qualitative subsample did not include any participants who did not speak English, did not live in Abuja, or who identified as female, and therefore their experiences may not be generalizable to the rest of the MSM in the quantitative sample or outside of the study.

As the key mechanism associated with lower levels of HIV testing in this sample, suicidal ideation may be an important intervention target for engaging Nigerian MSM in HIV prevention and care. Participants described the emotional comfort they felt when they found safe and supportive services in the midst of pervasive sexual stigma. Having the study clinic co-located with an MSM-led organization exposed them to HIV services that they may not have sought elsewhere. This study underscores the need to deliver sexual stigma mitigation interventions with mental health services as part of an integrated HIV prevention and care model for Nigerian MSM. Promising approaches to achieve such a model include co-locating HIV services with MSM CBOs, using a trauma-informed approach, providing mental health screening and treatment, offering HIVST, and developing peer support networks. Integration of such strategies could directly impact the uptake of promising biomedical advances and ultimately reduce the risk of the onward transmission of HIV.

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Figure 1.

Final model assessing the main effect of suicidal ideation on having ever been HIV tested and the interaction effect of suicidal ideation and sexual stigma classes on having ever been HIV tested, adjusting for participant characteristics

Table 1

Prevalence of participant characteristics in a sample of Nigerian men who have sex with men.

	Quantitative Sample		Qualitative Sample	
	N	%	N	%
Covariates^a	1480	100.0	24 ^b	100.0
Age				
<25	887	59.9	11	45.8
25	593	40.1	13	54.2
Gender				
Male	1,212	82.1	19	79.2
Female	180	12.2	0	0.0
Both/Versatile	84	5.7	5	20.8
Recruitment Waves				
First Half (0–11)	830	56.2	15	62.5
Second Half (12–27)	646	43.8	9	37.5
Knows Receptive Anal Sex is Position Most Likely to Transmit HIV				
No	806	57.3	7	31.8
Yes	600	42.7	15	68.2
Primary predictors				
Stigma Class				
Low	633	42.8	2	8.3
Medium	663	44.8	13	54.2
High	184	12.4	9	37.5
Ever Experienced Suicidal Ideation ^c				
No	1,049	70.9	9	37.5
Yes	427	28.9	11	45.8
Outcome				
Ever Been Tested for HIV ^d				
No	462	31.2	2	8.3
Yes	1,017	68.7	18	75.0

^aDue to answers of don't know, refusal, or missing, the following variables are missing some answers: 4 for gender, 4 for recruitment wave, and 74 for knowledge of receptive anal sex as the riskiest position.

^bN=24 because we did not have survey data for a staff member that was not also a study participant.

^cDue to answers of don't know, refusal, or missing, 4 answers are missing for suicidal ideation.

^dDue to an answer of don't know, 1 answer is missing for HIV testing.

Table 2

Distal outcomes across three latent classes of stigma, adjusting for participant characteristics, clustering by city, and excluding those previously diagnosed with HIV in a sample of men who have sex with men: proportions, standard errors, overall model statistics and pairwise comparisons.

Distal Outcomes ^a	%	SE	X ²	X ² p-value
HIV Testing ^b				
			Overall test	
High Stigma Class	0.65	0.02	3.26	0.196
Medium Stigma Class	0.63	0.05	0.09	0.759
Low Stigma Class	0.56	0.03	2.50	0.114
			Medium Stigma vs. Low Stigma	0.055
Suicidal Ideation ^c				
			Overall test	
High Stigma Class	0.50	0.04	42.00	0.000
Medium Stigma Class	0.31	0.02	20.55	0.000
Low Stigma Class	0.17	0.02	62.18	0.000
			Medium Stigma vs. Low Stigma	22.59 0.000

Boldface are significant at $p < .05$

^aEach outcome is analyzed separately and includes adjustment for age, gender, recruitment wave, and knowledge of riskiest sex position.

^bN=1059 because 74 participants that had a missing value for any of the variables in the analysis were excluded. This analysis excluded those that were already aware of the HIV diagnosis prior to enrollment into the study.

^cN=1349 because 131 participants that had a missing value for any of the variables in the analysis were excluded.