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Journal
AIDS Care, 28(10)

ISSN
0954-0121

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Publication Date
2016-10-02

DOI
10.1080/09540121.2016.1178699

Peer reviewed

HHS Public Access

Author manuscript

AIDS Care. Author manuscript; available in PMC 2017 October 01.

Published in final edited form as:

AIDS Care. 2016 October ; 28(10): 1301–1305. doi:10.1080/09540121.2016.1178699.

HIV testing among social media-using Peruvian men who have sex with men: correlates and social context

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Abstract

HIV remains concentrated among men who have sex with men (MSM) in Peru, and homophobia and AIDS-related stigmas have kept the epidemic difficult to address. Gay self-identity has been associated with increased HIV testing, though this relationship has not been examined extensively. Social media use has been rapidly increasing in Peru, yet little is known about MSM social media users in Peru. This study sought to investigate the demographic, behavioral, and stigma-related factors associated with HIV testing among social media-using Peruvian MSM. 556 MSM from Lima and surrounding areas were recruited from social networking websites to complete a survey on their sexual risk behaviors. We examined the demographic and social correlates of HIV testing behavior among this sample. Younger age and non-gay identity were significantly associated with lower likelihood of getting tested in univariate analysis. After controlling for key behaviors and AIDS-related stigma, younger age remained significantly associated with decreased testing. Participants who engaged in discussions online about HIV testing were more likely to get tested, while AIDS-related stigma presented a significant barrier to testing. Stigma severity also varied significantly by sexual identity. Youth appear to be significantly less likely than older individuals to test for HIV. Among Peruvian MSM, AIDS-related stigma remains a strong predictor of willingness to get tested. Social media-based intervention work targeting Peruvian youth should encourage discussion around HIV testing, and must also address AIDS-related stigma.

Keywords

HIV/AIDS; HIV prevention; Stigma reduction; Behavior intervention; Online social networks; Peru

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INTRODUCTION

HIV Among MSM in Peru

HIV remains concentrated among men who have sex with men (MSM) in Peru, with incidence rates of 3.5% and prevalence rates of 12.4% among MSM in Lima (Cáceres & Mendoza, 2009; *Country progress report: Peru*, 2012, *Global Report: UNAIDS Report on the Global AIDS Epidemic*, 2010, p. 46; Sanchez et al., 2007). This is disproportionately higher than among the general population, where prevalence estimates are less than 1% (UNAIDS, 2004).

MSM are heterogeneous; different subgroups vary by sexual risk and testing behaviors (Cáceres, 2002). Research from the United States and Australia suggests MSM who openly identify as “gay” or “queer,” and who have attachment to the “gay community” are more likely to test than non-gay identified MSM (Holt et al., 2012; MacKellar et al., 2006). While gay MSM carry a higher prevalence of HIV than non-gay MSM in Peru, they are also more likely to test for HIV (Cáceres et al., 2008; Tabet et al., 2002).

Homophobia and AIDS-related stigma have kept the epidemic among MSM especially difficult to address (*Global Report: UNAIDS Report on the Global AIDS Epidemic*, 2010; Smit et al., 2012). People with high AIDS-related stigma are unlikely to test for HIV themselves (Brooks, Etzel, Hinojos, Henry, & Perez, 2005; Ekstrand, n.d.; Goldin, 1994; Gregory M. Herek, 1999; Kalichman & Simbayi, 2003; Wolfe et al., 2006). Social pressure and fear of discrimination, rather than lack of knowledge or perceived value of testing, are thought to contribute to this finding (Chesney & Smith, 1999; Kalichman & Simbayi, 2003). Strategies to address stigma and discrimination have been limited in Peru (Cáceres & Mendoza, 2009).

Internet and Social Media Use in Peru

Internet access has increased in recent years for Peruvians, especially in Lima, with 41.7% of area homes having an Internet connection. Further, many gain access through Internet cafes, schools, and work places (Chase, 2013). 60% of urban Peruvian adults and 76% of youth and young adults ages 15 to 29 report using the Internet for social networking (“New Media and Peru’s Youth and Young Adults,” 2009).

AIDS-related stigma and homophobia may prevent Peruvian MSM from accessing sexual health and prevention services (Fay et al., 2011). While little is known about the sexual risk and HIV testing behaviors of social media using MSM in Peru, social networking sites may afford users added privacy, making them useful platforms to obtain sexual health information and social support, not acquired offline. This study describes the individual and social correlates of HIV testing among social media-using Peruvian MSM.

METHODS

Institutional review boards at each of the study sites approved the protocol. 556 MSM living in Lima, Peru and surrounding areas were recruited to participate in an intervention delivered over Facebook, which aimed to increase HIV testing and prevention behaviors.

Study design details have been published elsewhere (Young et al., 2015). Participants completed an online baseline questionnaire, from which data were drawn for these analyses.

Measures

The outcome was whether respondents had received an HIV test in the prior three years. Given this item was part of a larger intervention, a three-year time frame was used at baseline to provide a challenging benchmark for finding differences at follow-up. One respondent did not answer the question, and was excluded from analysis.

Demographic measures included age, education, employment status, sexual group identity, and partnership status. Behavioral correlates included reports of being high or buzzed on alcohol or drugs during sex, exchanging sex for food, money, drugs, or a place to stay, engagement in unprotected anal intercourse (insertive and receptive), seeking sex partners online, and engagement in casual sex (lifetime). Protective behaviors included talking about HIV testing on social media platforms and condom use. All behaviors, unless specified, referred to activity in the prior three months. Responses were coded dichotomously (yes/no).

AIDS-related stigma was assessed using a nine-item measure, translated into Spanish, which assessed negative feelings towards people living with HIV/AIDS (Kalichman et al., 2005). Internal consistency was assessed (alpha=0.8297), and a continuous composite score was calculated for each respondent. Stigma was dichotomized for analysis (above mean score = “high”, below mean = “low”).

Analysis

Age differences by HIV testing status were assessed using Wilcoxon rank-sum tests. Chi-square tests examined the individual associations between categorical variables and HIV testing behavior. A multiple logistic regression then assessed their combined effects on testing. Finally, a multiple logistic regression examined the association between AIDS-related stigma and sexual group identity to better understand the relationships between identity, stigma, and testing behavior. Analyses were performed using Stata 13 (StataCorp, 2013).

RESULTS

Demographic characteristics, health behaviors, and AIDS-related stigma scores were compared by history of HIV testing in table I. 67.2% of participants being tested in the prior three years. Participants who had been tested were significantly older than those who had not (29.9 years versus 26.8 years, respectively). Further, testing behavior varied by employment status, and among participants in different sexual identity groups. Alcohol and drug use during sex was associated with increased likelihood of testing, as was recent engagement in social media-based discussions with others about testing. Unprotected insertive anal intercourse and increased AIDS-related stigma were associated with decreased likelihood of testing.

Table II reports findings from a multiple logistic regression. Younger participants (<22.7 years) were significantly less likely to have tested than older participants. Only marginal

differences were found based on sexual identity, with those identifying as “men” or as “closeted” being less likely to test, compared to those identifying as “gay.” Participants who had online conversations about testing were over 3 times as likely to have tested than those who had not. AIDS-related stigma remained associated with decreased testing behavior.

Table III displays results from a logistic regression of AIDS-related stigma on sexual group identity, controlling for demographics and behaviors. Participants identifying as “men” and “closeted” carried significantly and marginally higher risks for elevated AIDS-related stigma, compared to “gay”-identified participants, respectively.

DISCUSSION

These results suggest a range of demographic and behavioral characteristics contribute to HIV testing behavior among social media-using MSM in urban Peru. Specifically, young age remains associated with decreased testing. Potential explanations include fewer opportunities to test among young MSM, shorter duration of sexual activity, and greater reliance on family members to coordinate healthcare visits. While educational differences in testing behavior were not observed, younger MSM may also lack knowledge about the importance of testing.

Engagement in discussions about HIV testing also appears to be an important predictor of actual testing behavior (Kelly et al., 1997). Further, social networking sites may represent ideal platforms for engaging in these conversations (Young & Jaganath, 2013). More work is needed to determine the dose and mechanisms by which such discussions should be facilitated in order to maximize their impacts.

AIDS-related stigma remains a major barrier to testing (Fortenberry et al., 2002; Gregory M. Herek, 1999). It is possible internalized homophobia is also associated with testing behavior. Since all members of the sample endorsed prior same-sex behavior, it is possible that internalized homophobia may underlie the sexual group identities participants chose. Prior work has shown direct associations between homophobia and AIDS-related stigmas (G.M. Herek & Capitanio, 1999; Parker & Aggleton, 2002), and participants who identified as “men” or as “closeted” scored higher than gay-identified participants on AIDS-related stigma. The association between internalized homophobia and testing behavior has been examined in European contexts (Berg, Ross, Weatherburn, & Schmidt, 2013). While little such work has occurred in South America, qualitative evidence from Lima suggests internalized homophobia is associated with increased risky behavior (Fernández-Dávila et al., 2008). Notions that AIDS is a disease of gay men may lead those who do not identify, or are unwilling to identify with the label to avoid testing. More research is needed to assess the relationships between sexual identity, homophobia, AIDS-related stigma, and HIV testing behavior.

Limitations

This study has additional limitations. Principally, these data are cross-sectional; inferences drawn about the associations presented should be interpreted with that in mind. Also, the outcome measure, testing behavior, was measured over a three-year period, further reducing

our ability to draw time-based conclusions about the relationships examined. Third, participants were recruited online, limiting the sample to those with Internet access. Finally, while displaying good internal consistency, the AIDS-related stigma measure used was developed for use in South Africa. To our knowledge, it has not been formally validated for use in Peru, posing a potential limitation to the findings presented. Notwithstanding, these results provide meaningful insights into the psychosocial correlates of HIV testing within an understudied population.

Conclusion

Interventions should address multiple psychosocial risk factors to meaningfully increase testing among MSM in Peru. In particular, interventions should address age disparities in testing, and should also aim to increase HIV knowledge, possibly by encouraging discussions about testing among participants. Social media sites may be suitable platforms for such discussions to occur. Finally, AIDS-related stigma remains high, and is a strong predictor of HIV testing behavior. More work should focus on non-gay identified MSM, who may represent a particularly underserved group, requiring appropriately tailored outreach and intervention strategies.

Acknowledgments

This work was supported by the National Institute on Aging under grant number T32AG033533; the Eunice Kennedy Shriver National Institute of Child Health and Human Development under grant number R24HD041022; and the National Institute of Mental Health under grant number MH090884. The content is solely the responsibility of the authors and does not necessarily represent the official views of the funding agencies.

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Table I

Characteristics of Demographics, Behaviors, and AIDS-Related Stigma by History of HIV Testing in the Past Three Years

	NOT tested previously (n=182)	Tested previously (n=373)	p-value*
Demographics			
Age: mean years (std. dev.)	26.78 (7.69)	29.85 (7.89)	<0.001
Sex, male: n (%)	182 (100)	373 (100)	
Education: n(%)			
Secondary school or less (%)	18 (9.89)	23 (6.17)	0.150
Some post-secondary (%)	61 (33.52)	149 (39.94)	
Some university or more (%)	103 (56.59)	201 (53.89)	
Employment: n(%)			<0.001
Full-time	83 (45.60)	231 (61.93)	
Part-time	36 (19.78)	71 (19.03)	
Student	43 (23.63)	39 (10.46)	
Other	20 (10.99)	32 (8.58)	
Sexual group identity: n(%)			0.005
Gay	109 (59.89)	278 (74.53)	
Man	39 (21.43)	53 (14.21)	
Closeted	20 (10.99)	26 (6.97)	
Other	14 (7.69)	16 (4.29)	
Partnership status: n(%)			0.937
Single (never married)	145 (79.67)	300 (80.43)	
Married/partnered	35 (19.23)	68 (18.23)	
Other	2 (1.10)	5 (1.34)	
Behaviors (past 3 months, unless specified)			
Been high or buzzed on alcohol while having sex: n(%)	44 (24.18)	121 (32.44)	0.046
Been high or used drugs while having sex: n(%)	9 (4.95)	35 (9.38)	0.070
Exchanged sex for food, money, drugs, or a place to stay: n(%)	18 (11.92)	35 (10.39)	0.615
Engaged in unprotected receptive anal intercourse: n(%)	83 (45.60)	154 (41.29)	0.335
Engaged in unprotected insertive anal intercourse: n(%)	90 (49.45)	147 (39.41)	0.025
Used online social networks to find sex partners: n(%)	98 (55.68)	184 (50.69)	0.277
Sex encounter with casual partner (ever): n(%)	64 (42.38)	115 (34.12)	0.080
Talked about HIV testing on online social media: n(%)	103 (56.59)	229 (80.16)	<0.001
Talked about using condoms on online social media: n(%)	139 (76.37)	306 (82.04)	0.116
Stigma			
AIDS-related stigma: n(%)			<0.001
Low (below mean)	84 (46.15)	247 (66.22)	
High (above mean)	98 (53.85)	126 (33.78)	

*Wilcoxon Rank-Sum tests were performed to assess statistical differences for continuous variables; Chi square tests were performed for categorical variables.

Table II

Odds of HIV Testing in the Past 3 Years by Demographic Characteristics, HIV-Related Behaviors, and HIV-Related Stigma, Logistic Regression Results

	Odds of HIV testing	95% CI	p-value
Age			
Q1: <22.7 years	Reference	-	-
Q2: 22.7<=x<27.1 years	2.352	(1.25 to 4.43)	0.008
Q3: 27.1<=x<32.9 years	3.055	1.53 to 6.11)	0.002
Q4: >=32.9 years	2.454	(1.21 to 4.96)	0.012
Education			
Secondary school or less (%)	Reference	-	-
Some post-secondary (%)	1.266	(0.52 to 3.08)	0.602
Some university or more (%)	1.211	(0.50 to 2.92)	0.669
Employment			
Full-time	Reference	-	-
Part-time	0.926	(0.52 to 1.66)	0.796
Student	0.764	(0.37 to 1.56)	0.461
Other	0.626	(0.29 to 1.33)	0.225
Sexual group identity			
Gay	Reference	-	-
Man	0.761	(0.41 to 1.40)	0.380
Closeted	0.769	(0.36 to 1.67)	0.504
Other	0.719	(0.25 to 2.08)	0.542
Partnership status			
Single (never married)	Reference	-	-
Married/partnered	0.726	(0.41 to 1.30)	0.279
Other	0.915	(0.09 to 9.70)	0.941
Been high or buzzed on alcohol while having sex (Yes)	1.420	(0.86 to 2.34)	0.170
Been high or used drugs while having sex (Yes)	1.364	(0.58 to 3.23)	0.480
Exchanged sex for food, money, drugs, or a place to stay (Yes)	0.838	(0.41 to 1.70)	0.623
Unprotected receptive anal intercourse (Yes)	1.632	(0.96 to 2.77)	0.069
Unprotected insertive anal intercourse (Yes)	0.722	(0.44 to 1.20)	0.207
Used online social networks to find sex partners (Yes)	0.771	(0.47 to 1.28)	0.308
Sex encounter with casual partner (ever) (Yes)	0.791	(0.47 to 1.32)	0.372
Talked about HIV testing on online social media (Yes)	3.066	(1.82 to 5.16)	<0.001
Talked about using condoms on online social media (Yes)	0.741	(0.39 to 1.40)	0.355
AIDS-related stigma			
Low (below mean)	Reference		
High (above mean)	0.482	(0.31 to 0.76)	0.002
Constant	1.000	(0.29 to 3.51)	0.999

*Pseudo R-square = 0.1357

Table III

Relationship Between AIDS-Related Stigma and Sexual Group Identity

Sexual Group Identity	Odds of High Stigma	95% CI	p-value
Gay	Reference	-	-
Man	2.284	(1.29 to 4.05)	0.005
Closeted	2.074	(0.98 to 4.37)	0.055
Other	1.740	(0.63 to 4.79)	0.284
Constant	0.658	(0.20, 2.18)	0.493

* Model controls for all demographics and behaviors presented in Tables I and II.