Published in final edited form as:
AIDS Care. 2013 September ; 25(9): 1109–1113. doi:10.1080/09540121.2012.749340.

Psychosocial risk factors for HIV sexual risk among Indian men who have sex with men

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Abstract

Indian men who have sex with men (MSM) are at increased risk for HIV compared to the general Indian population. Psychosocial factors may be uniquely associated with HIV risk among Indian MSM and may moderate the beneficial impact of standard HIV prevention approaches. Psychiatric diagnostic interviews and psychosocial and sexual risk assessments were conducted among 150 MSM in Mumbai, India. Logistic regression was employed to examine the association of psychiatric disorders and psychosocial problems to recent sexual risk behavior. Twenty-five percent of participants reported engaging in unprotected anal sex (UAS) during their last sexual contact with a man. Men who were married to a woman were more likely to have engaged in UAS during their last sexual contact with a man (35% vs. 17%, $p = 0.018$). In multivariable models, significant predictors of engaging in UAS were current major depression (adjusted odds ratio [AOR] = 2.61; 95% confidence interval [CI] 1.07, 6.39) and number of stressful life events (AOR = 0.91; 95% CI 0.83, 0.99). Alcohol dependence, anxiety, and self-esteem were not associated with engaging in UAS. Indian MSM with depression are at higher odds of engaging in UAS compared to MSM without depression. HIV prevention programs for Indian MSM may benefit from incorporating treatment or triage for mental health problems.

Keywords

men who have sex with men (MSM); Mumbai; India; mental health; depression; minority stress; HIV

Introduction

In India, approximately 2.3 million people are living with HIV, the third highest number in any country in the world. Men who have sex with men (MSM) are disproportionately affected, with an HIV prevalence estimated to be 25 times higher than the general population (7.3% vs. 0.3%; UNAIDS, 2010). A greater understanding of the specific factors

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associated with HIV vulnerability among MSM is required to develop appropriate and effective behavioral or bio-behavioral interventions.

MSM in India face a unique constellation of stressors that may contribute to negative psychological health and social functioning and, in turn, risky sexual behavior. Such obstacles include stigma (Chakrapani, Newman, & Shunmugam, 2008), harassment (Khan, 2001), and pressure to marry and have children (Go et al., 2004; Khan, 2001). While previous US studies have demonstrated a link between various measures of psychosocial health and sexual risk taking among MSM (Adam, Husband, Murray, & Maxwell, 2005; Mills et al., 2004; Reisner, Mimiaga, Safren, & Mayer, 2009; Stall et al., 2003; Wong, Kipke, Weiss, & McDavitt, 2010), there are few studies of MSM in developing countries that have quantitatively examined this link. A study of MSM in Chennai, India, found that clinically significant depressive symptoms were associated with a higher number of male sex partners and with engaging in unprotected anal sex (UAS; Safren et al., 2009). Therefore, further exploration is warranted, particularly in diverse regions of India where cultural customs and social attitudes may differ. This study examines the link between psychosocial factors and HIV sexual risk behavior among Indian MSM in a population-based sample in Mumbai.

Methods

Participants and procedures

Data for the current analysis were taken from a mental health study of 150 MSM in Mumbai, India, through the Humsafar Trust. The Humsafar Trust is a nongovernmental, community-based organization dedicated to the sexual health and human rights of MSM and gender minorities. Participants completed a one-time, confidential assessment conducted in English or Hindi by trained counselors in Mumbai. Participants were recruited by Humsafar Trust outreach staff and by word-of-mouth through various venues in Mumbai. Individuals were eligible to participate if they were 18–50 years of age, able to provide informed consent, and identified as a man who has sex with men. Transgender individuals were not included in the study because they face a unique, challenging psychosocial context distinct from that of other MSM. Full details of this study have been previously described elsewhere (Sivasubramanian et al., 2011). All study procedures were approved by the Institutional Review Boards at The Fenway Institute, Fenway Community Health in Boston, and at the Humsafar Trust.

Measures

Predictors

Demographics: Information was collected on participants' age, income, education level, occupation, marital status, living situation, and MSM subgroup identity (e.g., *Kothi*, predominantly receptive partners in anal and oral sex; *Panthi*, predominantly insertive partners; and *double-deckers*, both insertive and receptive partners).

Psychosocial assessments: Details on psychosocial measures are also described elsewhere in greater detail (Sivasubramanian et al., 2011). Participants were asked whether or not they were currently under treatment for a psychiatric disorder. The Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998) was used to assess current major depressive episode, current suicidality, alcohol dependence or abuse, and anxiety (dichotomized into two groups: (1) generalized anxiety and obsessive-compulsive disorder and (2) social phobia and posttraumatic stress disorder. Additionally, the Brief Symptom Inventory-18 (Derogatis, 2001) was used to assess general psychological distress (Cronbach's alpha = 0.89). Self-esteem was assessed using the Rosenberg Self-Esteem Scale

(Rosenberg, 1989; Cronbach's alpha = 0.88). To measure social support, participants were asked about how satisfied they were with the overall support they received from family and from friends. Finally, the Life Experience Survey assessed 39 culturally relevant stressful life events over the past 6 months, including pressure to marry, discrimination and harassment (Cronbach's alpha = 0.87). All multi-item measures were treated as raw additive scales.

Sexual risk—For this analysis, we determined whether participants reported engaging in any insertive or receptive UAS during their last sexual contact with a male partner in the past month (yes/no).

Data analysis

Chi-square and *t*-tests were computed to examine the bivariate associations between all demographic and psychosocial measures and engaging in UAS. Separate multivariable logistic regression models were conducted to examine the associations between psychosocial predictors and engaging in UAS (compared to protected anal sex or no anal sex), after controlling for demographic covariates. Additionally, a multivariable logistic regression was conducted to assess the simultaneous, independent associations between the statistically significant psychosocial predictors and engaging in UAS. Odds ratios, 95% confidence intervals, and *p*-values are reported. All statistical analyses were conducted in SPSS 18.0.

Results

One hundred fifty men are included in this analysis. Sample characteristics are described in Table 1.

Predictors of engaging in UAS

Twenty-five percent of participants reported engaging in UAS during their last sexual contact with a male partner. Men who were married to a woman were more likely to have engaged in UAS during their last sexual contact with a male partner (35% vs. 17%, $p = 0.018$) (Table 1). Engaging in UAS was also associated with MSM subgroup identity ($p = 0.063$). Men who identified as Kothi (27% vs. 35%) and bisexual (3% vs. 14%) were less likely to engage in UAS, and men who identified as "other" were more likely to engage in UAS (41% vs. 20%).

As reported elsewhere (Sivasubramanian et al., 2011), nearly half of participants reported current suicidality and one quarter had current major depression; despite this, no respondents reported current treatment for any psychiatric disorder (Table 2). In bivariate analyses, current major depression was associated with increased risk of engaging in UAS at last sexual contact with a male partner (42% vs. 25%, $p = 0.040$). Conversely, the average number of stressful life events was lower for those who engaged in UAS (8.3 vs. 11.7, $p = 0.003$).

Adjustment for demographic covariates did not meaningfully change these associations. Specifically, current major depression was associated with an increased risk of engaging in UAS at last sexual contact with a male partner (AOR = 2.61, 95% CI 1.07–6.39; $p = 0.036$), and each additional stressful life event indicated was associated with decreased risk of engaging in UAS (AOR = 0.91, 95% CI 0.83–0.99; $p = 0.027$) (Table 2, Model 1). When simultaneously including both psychosocial predictors in a multivariable model, these associations also did not meaningfully change (Table 2, Model 2).

Other psychosocial predictors were not significantly associated with engaging in UAS (Table 2).

Discussion

In India, where MSM are disproportionately affected by HIV (UNAIDS, 2010) and face substantial psychosocial stressors, the link between psychosocial factors and sexual risk taking seen in MSM in the USA may be extended to this setting (Adam et al., 2005; Mills et al., 2004; Reisner et al., 2009; Stall et al., 2003; Wong et al., 2010). However, the model linking psychosocial challenges and sexual risk behavior among MSM must be adapted within the unique social and psychological environment that MSM in India navigate.

Consistent with results of previous studies (Mills et al., 2004; Safren et al., 2009; Stall et al., 2003; Thomas et al., 2009), we found that having a current major depressive episode was associated with increased odds of sexual risk taking. The consistency of these findings suggests that depression and depressive symptoms ought to be considered in interventions aimed at reducing HIV risk. In this study, no participants reported current treatment for any psychiatric disorder, highlighting a critical health need and an important area for intervention in this population. “Bundling” care by integrating mental health screening and counseling into STI/HIV testing may have a synergistic impact on risk.

In contrast, individuals who reported fewer stressful life events were more likely to engage in UAS. While previous studies in the USA have produced mixed results regarding the negative impact of stressful life events (Calzavara et al., 2012), to the best of our knowledge, this is the first study that has shown an inverse association between stressful life events and sexual risk among MSM. While further exploration of this finding is necessary, occurrence of a particular life event does not measure the extent of its impact on an individual. For example, it is possible that those who have recently experienced more stressful life events have a higher distress tolerance and therefore reduced sexual risk taking, resulting in this inverse association (Updegraff & Taylor, 2000).

While this study offers several contributions to the literature, they should be taken in the context of its limitations. The data collected were cross-sectional; therefore, causation cannot be determined. Additionally, participants were recruited using convenience sampling, potentially limiting generalizability. The assessment was administered by an interviewer, and as a result, social desirability bias cannot be ruled out. Importantly, however, the MINI is a clinical, diagnostic instrument, allowing for valid assessment of the mental health disorders (Sheehan et al., 1998).

Despite these limitations, these findings suggest that the complex role of psychosocial problems, particularly depression, may be an important area of further research and future intervention among this population at high risk for HIV, particularly given the plethora of social and psychosocial stressors that MSM in India face.

Acknowledgments

This project was supported by an internal grant from the Fenway Institute at Fenway Health for data collection and project costs. Investigator effort was partially supported by the National Institute on Drug Abuse of the National Institutes of Health under grant number 1R21DA0.33.720-01 (PI: Mimiaga) and the National Institute of Mental Health of the National Institutes of Health under grant K24 MH0.94.214 (PI: Safren). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute on Drug Abuse, the National Institute of Mental Health or the National Institutes of Health.

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Table 1

Sample characteristics, overall and by UAS.

Variable	Total	Any UAS 38 (25.3%)	No UAS 112 (74.7)	*p* value
Age, mean (SD)	25.1 (5.06)	25.2 (5.18)	25.0 (5.04)	0.811
Monthly household income, mean (SD)	14,140.8 (14,868.22)	15,477.8 (20,815.44)	13,707.2 (12,440.85)	0.537
Monthly personal income, mean (SD)	5656.2 (6089.71)	5548.6 (5465.6)	5693.1 (6314.60)	0.904
Education				0.263
None	8 (5.4)	4 (10.5)	4 (3.6)	
Primary–secondary	83 (55.7)	20 (52.6)	63 (56.8)	
Higher secondary or more	58 (38.9)	14 (36.8)	44 (39.6)	
Unemployed	20 (13.3)	6 (15.8)	14 (12.7)	0.634
Married	31 (21.4)	13 (35.1)	18 (16.7)	**0.018**
With whom you live				0.926
Alone	11 (7.5)	2 (5.4)	9 (8.2)	
Wife and children	11 (7.5)	4 (10.8)	7 (6.4)	
parents	91 (61.9)	23 (62.2)	68 (61.8)	
relatives	20 (13.6)	4 (10.8)	16 (14.5)	
Male partner	7 (4.8)	2 (5.4)	5 (4.5)	
Other	7 (4.8)	2 (5.4)	5 (4.5)	
Born in Mumbai	105 (70.0)	28 (73.7)	77 (68.8)	0.566
MSM subgroup identity				0.063
Kothi	49 (33.1)	10 (27.0)	39 (35.1)	
Panthi	34 (23.0)	9 (24.3)	25 (22.5)	
Bisexual	17 (11.5)	1 (2.7)	16 (14.4)	
Gay	11 (7.4)	2 (5.4)	9 (8.1)	
Other	37 (25.0)	15 (40.5)	22 (19.8)	

Bold indicates $p < 0.05$.

Table 2

Mental health disorders, overall and as predictors of UAS during last sexual encounter with a male partner.

		Bivariate			Multivariate[a]			
Variable	**Total *N* (%)**	**Any UAS 38 (25.3%)**	**No UAS 112 (74.7%)**	***p* value**	**Models 1[b] AOR (95% CI)**	***p* value**	**Model 2[c] AOR (95% CI)**	***p* value**
Currently treated for psych. disorder	0	0	0	–	–		–	
Current major depressive episode	43 (28.7)	16 (42.1)	27 (24.5)	**0.040**	2.61 (1.07, 6.39)	**0.036**	3.24 (1.25, 8.36)	**0.015**
Alcohol dependence/abuse	25 (16.7)	8 (21.1)	17 (15.2)	0.401	1.75 (0.62, 4.94)	0.289	–	
Social anxiety/Post-traumatic Stress Disorder (PTSD)	21 (14.0)	5 (13.2)	16 (14.3)	0.863	1.22 (0.36, 4.13)	0.753	–	
Generalized anxiety/ Obsessive Compulsive Disorder (OCD)	20 (13.3)	6 (15.8)	14 (12.5)	0.606	2.37 (0.71, 7.94)	0.161	–	
Suicidal ideation	67 (45.0)	19 (50.0)	48 (43.2)	0.470	1.55 (0.68, 3.54)	0.297	–	
Brief symptom inventory, mean (SD)	11.4 (9.81)	13.5 (12.08)	10.7 (8.86)	0.135	1.04 (0.99, 1.08)	0.092	–	
Rosenberg self-esteem scale, mean (SD)	26.8 (4.67)	25.8 (5.55)	27.2 (4.30)	0.115	0.97 (0.88, 1.06)	0.458	–	
Number of stressful life events, mean (SD)	10.8 (6.24)	8.3 (3.06)	11.7 (6.79)	**0.003**	0.91 (0.83, 0.99)	**0.027**	0.89 (0.81, 0.98)	**0.013**

Bold indicates $p < 0.05$.

[a] Adjusting for age, education, marital status, and MSM subgroup identity.

[b] Separate models for each mental health predictor.

[c] One model simultaneously including mental health predictors significant (at $p < 0.05$) in Model 1.