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Suicidality, clinical depression, and anxiety disorders are highly prevalent in men who have sex with men in Mumbai, India: Findings from a community-recruited sample

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Abstract

In India men who have sex with men (MSM) are a stigmatized and hidden population, vulnerable to a variety of psychosocial and societal stressors. This population is also much more likely to be HIV-infected compared to the general population. However, little research exists about how psychosocial and societal stressors result in mental health problems. A confidential, quantitative mental-health interview was conducted among 150 MSM in Mumbai, India at The Humsafar Trust, the largest non-governmental organization serving MSM in India. The interview collected information on sociodemographics and assessed self-esteem, social support and DSM-IV psychiatric disorders using the Mini International Neuropsychiatric Interview (MINI). Participants' mean age was 25.1 years (SD=5.1); 21% were married to women. Forty-five percent reported current suicidal ideation, with 66% low risk, 19% moderate risk, and 15% high risk for suicide per MINI guidelines. Twenty-nine percent screened in for current major depression and 24% for any anxiety disorder. None of the respondents reported current treatment for any psychiatric disorder. In multivariable models controlling for age, education, income and sexual identity, participants reporting higher levels of self-esteem and greater levels of satisfaction with the social support they receive from family and friends were at lower risk of suicidality (self-esteem AOR=0.85, 95% CI: 0.78-0.93; social support AOR=0.76, 95% CI: 0.62-0.93) and major depression (self-esteem AOR=0.79, 95% CI: 0.71-0.89; social support AOR=0.68, 95% CI: 0.54-0.85). Those who reported greater social support satisfaction were also at lower risk of a clinical diagnosis of an anxiety disorder (AOR=0.80; 95% CI: 0.65-0.99). MSM in Mumbai have high rates of suicidal ideation, depression and anxiety. Programs to improve self-esteem and perceived social support may improve these mental health outcomes. Because they are also a high-risk group for HIV, MSM HIV prevention and treatment services may benefit from incorporating mental health services and referrals into their programs.

Keywords

Men who have sex with men (MSM); Mumbai; India; mental health; suicide; depression; anxiety

Introduction

India has the greatest number of HIV infections of any nation in Asia and the third largest national HIV epidemic in the world (UNAIDS and WHO, 2008; UNAIDS, 2008). While the generalized heterosexual epidemic in India appears to be stabilized or declining (Arora, Kumar, Bhattacharya, Nagelkerke, & Jha, 2008), men who have sex with men (MSM) constitute a high-risk group with an increasing HIV prevalence, currently estimated to be 7.4% nationally and 12.5% in Mumbai, India's largest city (NACO, 2008; Kumta et al., 2010). The specific factors contributing to this population's elevated HIV risk remain poorly understood, including the role of mental health problems on individual behaviors. Since India may possess the world's largest MSM population (U.S. Census Bureau, 2010; Cáceres, Konda, Pecheny, Chatterjee, & Lyerla, 2006), understanding the factors potentiating HIV transmission behaviors in this population is vital to the development of strategies to slow the global HIV epidemic.

In the U.S. and other Western nations, it has been established that MSM experience mental health problems at a higher prevalence than the general population. For example, studies have revealed an increased risk for depression or suicidality in gay and bisexual individuals compared to heterosexual samples (Fergusson, Horwood, & Beautrais, 1999; Herrell et al., 1999; Nurius, 1983; Safren & Heimberg, 1999), and analyses of population-based mental health surveys have found evidence for higher rates of major depression, anxiety, mood, panic, and substance-use disorders; as well as experiences with discrimination and suicidal symptomatology in individuals disclosing same-sex sexual behavior or identifying as homosexual compared to the rest of those surveyed (Mays & Cochran, 2001; Cochran & Mays, 2000 a, b; Kessler et al., 1994; Gilman et al., 2001; Cochran, Sullivan, & Mays, 2003; Conron, Mimiaga, & Landers, 2010). Researchers have suggested that adverse social conditions directed towards MSM, including homophobia and prejudice, contribute to these elevated levels of psychosocial problems through a process termed *minority stress*, a model that incorporates various psychological and stress theories to explain health disparities among MSM and other sexual minorities. External social conditions and structures, such as stigma and discrimination towards same-sex behavior, serve as the distal stressors that impact the individual through proximal processes, including expectations of rejection, concealment and internalized homophobia, which may subsequently present as depression, anxiety and suicidal ideation (Meyer, 1995; Meyer, 2003). In turn, these psychosocial health problems interact with HIV risk to produce *syndemics*, synergistic epidemics that magnify an individual's vulnerability to HIV infection (Stall et al., 2003).

Additionally, Indian MSM engage in HIV sexual risk behaviors within a complex psychosocial environment that includes societal stigmatization, discrimination, and violence (Chakrapani, Newman, Shunmugam, McLuckie, & Melwin, 2007). There is strong social and familial expectations towards opposite-sex marriage and reproduction, and many MSM have sex with both men and women (Asthana & Oostvogels, 2001; Kumta et al., 2010; Solomon et al., 2010). Despite a recent judicial ruling in Delhi state, consensual same-sex sexual behavior remains culturally forbidden in most of the country (Skanland, 2009), which necessitates many MSM to remain hidden and consequently difficult to reach by HIV prevention services (Safren et al., 2006; Thomas et al., 2009).

Based on evidence from other countries, these social stressors may negatively affect MSM mental health in India. However, limited research has been conducted to determine the prevalence of mental health problems among this population. For example, a recent survey among 210 MSM in Chennai found over half the sample had clinically significant depressive symptoms, which were associated with unprotected anal sex and a higher number of male sexual partners (Safren et al., 2009). While mental health problems such as

depression and alcohol abuse have been shown to increase HIV risk among U.S. MSM by potentially inhibiting condom use self-efficacy and social cognition (Safren, Reisner, Herrick, Mimiaga, & Stall, 2010; Hirshfield, Remien, Humberstone, Walavalkar, & Chiasson, 2004), there is little research establishing baseline mental health information for Indian MSM. The purpose of the present study is to describe mental health concerns among MSM in Mumbai and to identify demographic and psychosocial factors that are associated with suicidality, depression, and anxiety among this marginalized population.

Methods

Participants and Procedures

A one-time, confidential quantitative interview was conducted among 150 MSM in Mumbai, India at the Humsafar Trust, a non-governmental, community-based organization dedicated to the sexual health and human rights of MSM and gender minorities (Humsafar Trust, 2004). Because it was a one-time interview, no identifying information of individuals was linked to study data. The interviewers reviewed a consent form with participants and confirmed that participants understood all aspects of the study, including the protection of study-related information. The interviewers then signed the consent form confirming participation and requested participants to voluntarily provide their initials. Interviews were conducted by trained counselors at the Humsafar Trust clinic site in Vakola Market, Santa Cruz East, Mumbai. Counselors were trained in the administration of the assessment battery through a two-day intensive training involving didactic and role-play exercises, and had several in-person reviews throughout the study period. If the researchers learned of participant mental health problems while conducting interviews, then, to the extent possible, referrals and assistance with accessing appropriate services at a governmental hospital psychiatric clinic was provided. Study data were stored with no identifying information under lock and key with access limited to trained study staff. The data were maintained at The Humsafar Trust and analyzed jointly by Humsafar Trust and U.S. investigators. All study procedures were approved by the Institutional Review Board (IRB) at The Fenway Institute, Fenway Health in Boston as well as the IRB at the Humsafar Trust.

Eligibility Criteria

Participants were recruited by Humsafar Trust staff as part of ongoing outreach work 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 other men. Male-to-female transgender individuals (for example, those who identified as *hijra*, *ali* or *arivani*) were not included in the study because they do not identify as men and they have different life experiences.

Study Assessments

After completing the informed consent process, the interviewer administered the assessment battery in either English or Hindi. The assessment consisted of the following sections:

Demographics

A brief questionnaire surveyed participants' age, MSM identity, income, occupation, education level, marital status, living situation (self, parents, friends, partner, spouse), and whether or not they were currently under treatment for a psychiatric disorder. MSM identities included in the study were *kothi* (feminine acting/appearing and predominantly receptive partners in anal and oral sex), *panthi* (masculine appearing, predominantly insertive partners), bisexual (have sex with both men and women), gay (Western

acculturated), and other (Asthana & Oostvogels, 2001; Chakrapani et al., 2002; Boyce, 2007).

Psychiatric syndromes

The Mini International Neuropsychiatric Interview (MINI) is a validated, brief, English-language structured interview that has been translated into Hindi (Sheehan et al., 2003; Hindi translation by C. Mittal, K. Batra, S. Gambhir, Organon). It assessed the following psychiatric disorders: major depressive episode, dysthymia, suicidality (measured and scored using 6 internationally recognized diagnostic criteria), manic and hypomanic episode, panic disorder, agoraphobia, social phobia, obsessive-compulsive disorder, posttraumatic stress disorder, alcohol dependence and abuse, substance dependence and abuse, psychotic disorders, and generalized anxiety disorder.

Distress

The Brief Symptom Inventory-18 (BSI-18; Derogatis, 2001) is a validated measure used with community populations to screen for psychological distress, including anxiety, depression, and somatization (physiological symptoms such as chest pain, nausea and trouble breathing). Participants were asked how much they were distressed by 18 items that characterized anxiety, depression and somatization on a scale of 0 (“not at all”) to 4 (“extremely”). Additive raw scores were then averaged for the sample and compared to scores reflecting community norms.

Self esteem

Participants answered questions about their self-esteem using the Rosenberg Self-Esteem Scale (Rosenberg, 1989), a validated measure that asks participants to rank statements such as “I take a positive attitude towards myself” on a scale from 1 (“strongly disagree”) to 4 (“strongly agree”). An average score for the sample was then compared to a total highest possible score of 36.

Social support

To measure social support, participants were asked 1 question about how satisfied they were with the overall support they received from friends and 1 question about how satisfied they were with the overall support they received from family members. Participants were asked to rank responses from 1 (“not at all satisfied”) to 5 (“very much satisfied”). An average score for the sample was then compared to a total highest possible score of 5 for each question.

Life events

Based on the format of the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978), this measure assessed 40 specific stressful life events over the past 6 months. The specific events were developed by the study team with input provided by Humsafar Trust staff and community members. Stressful situations listed in the measure included pressure of marriage, pressure to have children, fear of having one's sexual orientation known to others, discrimination and harassment. The average number of stressful life events was calculated, along with the 5 most frequently reported among the sample.

Data analysis

SAS version 9.1 (Cary, NC) statistical software was used to perform each analysis, where statistical significance was determined at the $p < 0.05$ level. The frequency and distribution of each variable was assessed using univariate statistics, including frequencies of psychiatric disorders assessed via the MINI. Due to low individual frequencies, the following anxiety-

related disorders were combined as a single, analytic variable: generalized anxiety disorder, agoraphobia, obsessive-compulsive disorder, panic disorder, social phobia, and post-traumatic stress disorder. While the foci of these disorders differ, they share similar symptoms (e.g. fear, avoidance), and emerging research indicates their commonalities, including etiologies, may supersede their differences, suggesting a unified approach to treatment (Barlow, 2002; Wilamowska, 2010). Having current major depression was correlated with the depression subscale of the brief symptom inventory, and having any anxiety-related disorder (e.g. panic disorder, generalized anxiety disorder) was correlated with the anxiety subscale of the brief symptom inventory.

Primary outcomes in regression models

Three outcomes were assessed using the MINI: 1) current suicidality, 2) current major depression, and 3) screening positive for any anxiety-related disorder.

Predictors of interest

Demographic and contextual factors, the Rosenberg self-esteem scale, and satisfaction with social support were examined for their association with the three outcomes (suicidality, depression, and anxiety). Bivariate logistic regression procedures were employed to examine statistically significant associations between predictor variables and the three outcomes of interest.

Multivariable models

Variables that were statistically significant in the bivariate regression analyses were retained in three separate multivariable logistic regression models – a separate model for each of the three outcomes assessed (suicidality, depression, and anxiety). An a priori decision was made to adjust for age, education, income and MSM sexual identity in the three final multivariable logistic regression models.

Results

Descriptive statistics

Demographic and other characteristics of the study sample are outlined in Table 1. The mean age of the sample was 25 (SD = 5.1), with 23% having completed a college degree and the majority (87%) being currently employed. MSM described themselves as kothi (33%), panthi (23%), bisexual (11.5%), gay (7.4%), and other (25%). The majority of the sample was born in Mumbai (70%), and 21% were married to a woman at the time of their participation in the current study.

Psychiatric syndromes

Forty-five percent of the men were currently suicidal at the time of their interview. Of these individuals with current suicidality, 66% were at low risk, 19% at moderate risk, and 15% at high risk (see Table 2).

Participants had a variety of mental health disorders, including current major depression (29%) and any anxiety-related disorder (24%). Current major depression ($r=0.62$, $p<.0001$) and any anxiety-related disorder ($r=0.20$, $p<.03$) were both significantly, positively correlated with the related subscales of the brief symptom inventory, corroborating these diagnoses. Other less common mental health diagnoses included current or prior hypomanic episode (9.5%), ever having a psychotic disorder (7.4%), currently having a psychotic disorder (5.4%), current mood disorder with psychotic features (5.4%), current or prior manic episode (3.4%), and current dysthymia (2.7%).

With respect to substance use, over 15% had current alcohol dependence. No one screened positive for having any other drug dependence.

Bivariate and multivariable models predicting suicidality, major depression, and any anxiety-related disorder

Current suicidality—In bivariate analyses, MSM with higher levels of social support satisfaction (OR = 0.76; 95% CI: 0.63, 0.91) and self-esteem (OR = 0.86; 95% CI: 0.80, 0.94) were at decreased risk of reporting current suicidal ideation. In a multivariable model adjusting for age, education, income and MSM sexual identity, participants with higher levels of social support satisfaction (AOR = 0.76; 95% CI: 0.62, 0.93) and self-esteem (AOR = 0.85; 95% CI: 0.78, 0.93) were at lower risk of being suicidal.

Current major depression—MSM with higher levels of social support satisfaction (OR = 0.65; 95% CI: 0.52, 0.80) and self-esteem (OR = 0.80; 95% CI: 0.73, 0.89) were at decreased risk of having a clinical diagnosis of current major depression in bivariate analyses. Older MSM were more likely to report current major depression (OR = 1.08; 95% CI: 1.01, 1.16). In a multivariable model adjusting for age, education, income and MSM sexual identity, participants with higher levels of social support satisfaction (AOR = 0.68; 95% CI: 0.54, 0.85) and self-esteem (AOR = 0.79; 95% CI: 0.71, 0.89) were at decreased risk of having current major depression.

Any anxiety-related disorder—In bivariate analyses, participants with higher levels of social support satisfaction (OR = 0.83; 95% CI: 0.68, 0.99) were at decreased odds of having a clinical diagnosis of any anxiety-related disorder. In a multivariable model controlling for age, education, income and MSM sexual identity, participants with higher levels of social support satisfaction (AOR = 0.80; 95% CI: 0.65, 0.99) were at lower risk of having a clinical diagnosis of any anxiety-related disorder. The results of these bivariate and multivariable analyses are presented in Table 3.

Discussion

This study demonstrates that the frequency of psychosocial and mental health problems among MSM in Mumbai is strikingly high, suggesting a significant mental health burden among this population. Forty-five percent reported current suicidal ideation, with 66% low risk, 19% moderate risk, and 15% high risk for suicide per MINI guidelines (Sheehan et al., 2003). Twenty-nine percent had a current major depression; 24% had some anxiety-related disorder. The findings further suggest there is a significant unmet need for mental health services for MSM in Mumbai, as no respondent reported current treatment for any psychiatric disorder.

Research investigating the mental health of MSM in India is at a very early stage, with a handful of studies and reports describing pervasive experiences of stigma, harassment and discrimination (Safren et al., 2006; Chakrapani et al., 2007; Newman et al., 2008). As outlined by the minority stress model, these adverse social conditions contribute to elevated psychological distress such as suicidality and depression through both distal processes, including legally and culturally sanctioned discrimination, and proximal processes such as personal concealment as MSM and internalized homophobia (Meyer, 2003). Further, because of these pressures, finding MSM sexual partners can be a difficult and challenging task, which can potentially lead to high-risk behaviors. One common scenario is that because of these pressures, when an individual does find a sex partner, negotiating safe sex can be difficult because of fears that the partner will reject them if they want to use a condom. Same-sex sexual behavior remains technically criminal in most Indian states, and

discussing same-sex sexual behavior with others is culturally taboo (Venkatesan & Sekar, 2001). As a result, MSM in India are often hidden and/or silent (Dandona et al., 2005; Go et al., 2004), while they remain a high risk group for HIV infection (NACO, 2008). Recent work suggests that these mental health problems may exacerbate sexual risk behavior and increase susceptibility of MSM to HIV (Safren et al., 2009).

The findings in this study also demonstrate the protective role provided by self-esteem and perceived social support. Participants reporting higher levels of self-esteem and greater satisfaction with the social support they receive from family and friends were at lower risk of being suicidal or having major depression, and those with greater social support satisfaction were at decreased risk of having any anxiety-related disorder. Interventions designed to strengthen these individual and interpersonal components of a multi-level system could foster individual resilience and potentially reduce the additive effects of multiple psychosocial problems co-occurring as syndemics, including HIV risk (Stall et al., 2003). For example, based on recent qualitative work among 56 MSM in Chennai, a group-level intervention has been developed that addresses HIV prevention within the context of broader psychosocial concerns, including self-acceptance, safe ways to meet men, coping with pressures from family and society, alcohol/substance use, and skills building (Johnson et al., 2010). This proposed intervention is currently being tested among Chennai MSM as a pilot randomized controlled trial, which if successful could be extended to MSM in Mumbai (Steven A. Safren, U.S. PI; Beena Thomas, Indian PI; U.S. NIMH #R21 MH085314-01).

There are limitations to the present study which bear mention. First, data collected were cross-sectional and therefore inferences about causality cannot be established. Second, data were collected via interviewer-administered techniques, and hence social desirability and/or demand characteristics may have influenced the results; however, this would likely have decreased the frequency to which findings were reported, and thus these findings may actually be under reported. Also, the use of a structured interview with a trained interviewer represents the gold standard in the assessment of psychiatric conditions. Third, anxiety-related disorders are separate diagnoses and combining them into a single analytic variable may raise concerns regarding the validity of anxiety-related findings. Recent research suggests the commonalities among anxiety disorders may supersede their differences, including high rates of diagnostic comorbidity, some generalization of treatment response, common patterns of neural activation, and similar etiologies, giving rise to a unified treatment protocol (Wilamowska, 2010). Fourth, because the sample was recruited via outreach efforts by a local MSM non-governmental organization, generalizability of the study findings may be limited. Despite these concerns, the present study is the first to examine the prevalence of a wide array of mental health disorders using a clinically validated, diagnostic instrument (Sheehan et al., 2003) and to assess associations to depression, anxiety and suicidality among MSM in India.

This study clearly demonstrates that many MSM in Mumbai are in need of psychosocial services, most notably for the prevention and treatment of suicidality, depression, anxiety, and alcohol dependence. MSM who reported higher levels of self-esteem and perceived social support were less likely to suffer from these psychological symptoms, suggesting that programs such as group-level interventions that provide opportunities to improve self-esteem and social support would improve these mental health outcomes. Furthermore, since MSM in India are a key risk group for the spread of HIV infection (NACO, 2008), and the literature has well documented a positive association between mental health problems and HIV sexual risk taking, future HIV prevention interventions with at risk Indian MSM may benefit from integrating counseling or triage for mental health problems with HIV risk reduction counseling.

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Table 1

Demographic, psychosocial and other sample characteristics of MSM in Mumbai, India (N=150).

	Mean (SD)
Age	25.1 (5.1); spread: 18 - 42
Monthly average household income (Rs.)	14140.8 (14868.2)
Monthly average individual income (Rs.)	5656.2 (6089.7)
Social support	
Satisfaction with overall social support from friends	3.7 (1.0)
Satisfaction with overall social support from family members	3.5 (1.2)
Life experience survey – total events	11.6 (6.6)
Rosenberg self-esteem scale	26.9 (4.7)
Brief symptom inventory-18 total score	11.4 (9.8)
Depression score	6.03 (5.2)
Anxiety score	3.11 (3.2)
Psychosomatic score	2.28 (2.9)
	N (%)
Educational attainment	
Illiterate, no formal education	7 (4.70)
Literate, no formal education	1 (0.67)
Primary	18 (12.08)
Middle	28 (18.79)
Secondary	37 (24.83)
Higher secondary	24 (16.11)
Undergraduate/college	15 (10.07)
Graduate school/above	19 (12.75)
Employment status	
Employed	130 (86.67)
Unemployed	20 (13.33)
Living situation	
Alone	11 (7.48)
With wife and children	11 (7.48)
With parents	91 (61.90)
With joint relatives	16 (10.88)
With relatives only	4 (2.72)
With male partner	7 (4.76)
Other	7 (4.76)
Born in Mumbai	
Yes	105 (70.0)
No	45 (30.0)
MSM Identity	
Kothi	49 (33.11)

	Mean (SD)
Panthi	34 (22.97)
Bisexual	17 (11.49)
Gay	11 (7.43)
Other (homosexual, no identity)	37 (25.00)
Marital Status	
Unmarried	114 (76.51)
Married	31 (20.81)
Divorced	2 (1.34)
Widowed	2 (1.34)
Current treatment for psychiatric disorder	
No	150 (100.00)

Table 2

MINI International Neuropsychiatric Interview (DSM-IV) diagnoses among MSM in Mumbai, India (N=150).

Diagnostic Categories	N (%)
Suicidality Current	
Yes	67 (44.97)
No	82 (55.03)
Suicidality Risk	
Low	44 (65.70)
Moderate	13 (19.40)
High	10 (14.90)
Major Depression Current	
Yes	43 (29.05)
No	105 (70.95)
Dysthymia Current	
Yes	4 (2.68)
No	145 (97.32)
Any Anxiety Disorder Current	
Yes	36 (24.00)
No	114 (76.00)
Alcohol Dependence Current	
Yes	23 (15.65)
No	124 (84.35)
Hypomanic Episode Current/Past	
Yes	14 (9.46)
No	134 (90.54)
Manic Episode Current/Past	
Yes	5 (3.40)
No	142 (96.60)
Psychotic Disorders Current	
Yes	8 (5.37)
No	141 (94.63)
Psychotic Disorders Lifetime	
Yes	11 (7.38)
No	138 (92.62)
Mood Disorder with Psychotic Features Current	
Yes	8 (5.37)
No	141 (94.63)

Table 3

Bivariate and multivariable models predicting 1) suicidality (current), 2) major depression, and 3) any anxiety-related disorder (N = 150).

	Suicidality		Depression		Anxiety	
	OR (95% CI)	Adjusted-OR (95% CI)	OR (95% CI)	Adjusted-OR (95% CI)	OR (95% CI)	Adjusted-OR (95% CI)
Age	---	---	1.08 (1.01, 1.16)	---	---	---
Social support satisfaction	0.76 (0.63, 0.91)	0.76 (0.62, 0.93)*	0.65 (0.52, 0.80)	0.68 (0.54, 0.85)*	0.83 (0.68, 0.99)	0.80 (0.65, 0.99)*
Self-esteem	0.86 (0.80, 0.94)	0.85 (0.78, 0.93)*	0.80 (0.73, 0.89)	0.79 (0.71, 0.89)*	---	---

* Odd ratios adjusted for age, education, income and MSM sexual identity.