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MODELLING THE IMPACT OF STIGMA ON DEPRESSION AND SEXUAL RISK BEHAVIOURS OF MEN WHO HAVE SEX WITH MEN AND HIJRAS/TRANSGENDER PEOPLE IN INDIA: IMPLICATIONS FOR HIV AND SEXUAL HEALTH PROGRAMS



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**Modelling the Impact of Stigma on Depression and
Sexual Risk Behaviours of Men who have Sex with Men and
Hijras/Transgender women in India:
Implications for HIV and Sexual Health Programmes**

A Mixed Methods Study

2013

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Acronyms and Abbreviations

AmoS	Analysis of Moment Structures
BDI	Beck's Depression Scale
CI	Confidence Interval
CBO	Community-based Organisation
GNS	Gender non-conformity Stigma
HIV	Human Immunodeficiency Virus
HIVS	HIV-related Stigma
IDI	In-depth Interview
MSM	Male who have Sex with Men
NACO	National AIDS Control Organisation
NGO	Non-governmental Organisation
OR	Odds Ratio
SD	Standard Deviation
SPSS	Statistical Package for Social Sciences
SxS	Sexual Stigma
SEM	Structural Equation Modelling
TG	Transgender [people]
TGS	Transgender Identity Stigma

Executive Summary

Modelling the Impact of Stigma on Depression and Sexual Risk Behaviours of Men who have Sex with Men (MSM) and Hijras/Transgender (TG) people in India: Implications for HIV and Sexual Health Programs

1. BACKGROUND

We adapted Meyer's minority stress model to examine the influence of sexual stigma (SxS)/gender non-conformity stigma (GNS), transgender identity stigma (TGS) and HIV-related stigma (HIVS: vicarious, felt normative, enacted and internalised) on mental health (depression) and sexual risk (unprotected anal sex) among men who have sex with men (MSM) and hijras/transgender people in India. We hypothesised that social support and resilient coping would mediate and moderate the relationship between stigma and depression.

2. METHODS

We used **sequential explanatory mixed methods design** with two phases. First, a **cross-sectional survey** was administered to 300 MSM and 300 hijras/TG recruited from 3 urban (Mumbai, Delhi and Kolkata) and 3 rural (Sangli, Kancheepuram and Kumbakonam) sites. We used hierarchical linear and logistic regression models as well as structural equation models to empirically validate theoretical predictions regarding the relationships between three latent independent variables (HIV-related stigma, sexual stigma and transgender identity-related stigma), two latent moderator variables (social support and resilient coping) and two dependent variables (depression and sexual risk behaviours).

Second, we conducted **qualitative in-depth interviews** among 20 confirming cases (MSM=10; TG=10) and 19 disconfirming cases (MSM=10; TG=9) from the survey sample, and analysed the data using constant comparison and 'process tracing' techniques using NVivo7. The focus of the qualitative data analyses was to understand the mechanisms by which stigma influence mental health and sexual risk.

3. RESULTS

3a. Characteristics of survey participants (n=600: MSM=300; Hijra/TG=300)

Participants' mean age was 29.7 (SD 8.1). Most participants were from educated background (completion of primary school -16%; elementary - 21%; high school - 24%). Relatively higher proportion of MSM (17%), when compared with hijra/TG (7%), were graduates. Fifteen percent of the study population were staff of voluntary organization while another equal proportion (15%) reported sex work as their main occupation. Thirty (10%) participants self-reported being HIV-positive. Between groups, sex in exchange for money was twice higher among hijra/TG (71%) than MSM (38%).

Qualitative in-depth interviews (n=39)

MSM (n=20): The mean age of participants was 31.4 (± 7). Almost half (47%) of the participants have completed high school and more than one-fourth (26%) had completed college degree. Fifty-eight percent were daily-wage labourers. Only 2 out of 10 married participants were living with their wife. Sixty-three percent of participants self-identified as kothis and 15% as gay.

Hijra/TG (n=19): The mean age of participants was 33.2 (± 11.5). About one-third (30%) of participants had completed high school and one-fourth (25%) had completed college degree. Thirty percent were daily-wage laborers and another 30% reported begging as their main occupation. Only 3 were married. One-third (35%) of the participants self-identified as hijras and one-fourth (25%) as 'transgender' (used this English term).

3a. Survey: Descriptive findings

Depression and stigma scores

MSM (n=300): A significant proportion of participants reported moderate (21%) or severe (15%) depression scores (Mean-5.12, SD-4.1); and moderate (55%; n=113/205) or severe (7%; n=15/205) gender non-conformity stigma.

Hijras/TG people (n=300): The majority of participants reported moderate (19%) or severe (24%) depression scores (Mean-5.9, SD-4.2) and moderate (53%) or severe (33%) transgender identity stigma (Mean-38.6, SD-7.1).

Sexual risk

Inconsistent condom use with different types of male partners. MSM (n=271/300): A higher proportion (39%) of MSM reported inconsistent condom use with their regular partners when compared to that with casual and paying partners (29% and 26%, respectively). Hijra/TG (n=276/300): A higher proportion (51%) of Hijra/TG reported inconsistent condom use with their regular partners when compared to that with casual and paying partners (32% and 31%, respectively).

Condom use in last anal sex. Among those who engaged in anal sex, about one-fourth of MSM (27%; n=80/294), and one-third (32%; n=95/293) did not use condom in last anal sex.

3b. Survey: Hierarchical Linear Regression Models for the influence of stigma on depression

MSM (n=300): In the final step, gender non-conformity and sexual stigma (GNS/SxS) and HIV-related stigma total score (and the individual scores of vicarious and felt normative HIV-related stigma subscales) were significant predictors of depression. Resilient coping and social support too were significant.

Hijras/TG (n=300): In the final step, transgender identity stigma was a significant predictor of depression. The individual scores of vicarious and felt normative HIV-related stigma subscales were significant predictors of depression. Resilient coping and social support were significant predictors.

3c: Survey: Multivariate hierarchical logistic regression modelling of sexual risk behaviours (*Inconsistent condom use with different types of male partners and lack of condom use in last anal sex*)

MSM (n=300): Neither GNS/SxS nor HIV-related stigma was a significant predictor of sexual risk with male casual or paying partners. MSM with high levels of HIV-related stigma were more likely to engage in unprotected sex in last anal sex. People with moderate social support were less likely to be inconsistent condom users with male paying partners. Social support was not a significant predictor of sexual risk with regular or casual partners. MSM with high levels of resilient coping were less likely to be inconsistent condom users with casual and paying partners, and less likely to engage in unprotected anal sex. MSM with high levels of resilient coping were less likely to be inconsistent condom users with male regular, paying or casual partners, and less likely to engage in unprotected sex in last anal sex encounter.

Hijras/TG (n=300): Neither TG identity stigma nor HIV-related stigma was a significant predictor of sexual risk with any type of male partners (regular, casual and paying) or unprotected sex in last anal sex. TG people with severe depression and frequent use of alcohol were more likely to be inconsistent condom users with male casual and paying partners. TG people with moderate or high levels of social support were less likely to be inconsistent condom users with casual and paying partners, and less likely to engage in unprotected sex in last anal sex. Social support was not a significant predictor of sexual risk with male regular partners. Resilient coping was not a significant predictor of sexual risk with any of the male partner types.

3d. Survey: Structural Equation Modelling (SEM) of the influence of stigma on depression

Using the adapted minority stress model, SEM models were tested among MSM and TG data separately. Overall, the model fits confirmed that the empirical data provided evidence that adapted minority stress models for MSM and hijras/TG cannot be rejected. For MSM (n=300), the goodness of fit for the full model showed that it fit the data well (Chi-square=1.853, df=3, p=.603; RMSEA=0.000; CFI=1.00; TLI=1.01). For hijras/TG (n=300), the goodness of fit for the full model showed that it fit the data well (Chi-square=6.187, df=3, p=.103; RMSEA=0.06; CFI=.984; TLI=.984). These imply that the hypothesized adapted minority stress model of the associations among the constructs (gender non-conformity and sexual stigma, transgender identity stigma, HIV-related stigma, social support, resilient coping, and depression) is tenable.

3e. Qualitative findings

Qualitative findings helped to better understand the mechanisms of how stigma influences mental health and sexual risk: societal stigma contributed to internalised homo/transphobia; discriminatory incidents based on sexuality, gender identity or HIV-positive status seemed to have a cumulative effect on the mental health - resulting in depression and alcohol use, which in turn influenced sexual risk behaviours. HIV-positive self-identified MSM and hijras believed that they became HIV-positive because of their sexuality, which further heightened their internalised homo/transphobia.

4. CONCLUSIONS

Inferences from quantitative and qualitative analyses offer empirical support for the minority stress model that stigma targeting sexual minorities is associated with depression and sexual risk, and social support and resilient coping may act as a possible buffer against depression and sexual risk. Study findings may inform inclusion of multi-level stigma reduction measures within existing HIV prevention and care interventions for MSM and hijras/TG people in India.

5. FINDINGS-BASED RECOMMENDATIONS

i. Educate and sensitize the general public and other stakeholders on sexual minority issues to decrease societal stigma and promote acceptance

Societal stigma against same-sex sexuality and transgenderism seems to contribute to the self-stigma among sexual minorities as well as serve as a justification for perpetrators to discriminate sexual minorities. Hence, it is critical to promote understanding of same-sex sexuality and transgenderism among various stakeholders. Educational and sensitization programmes thus need to be organised at schools, colleges, work places, health care settings, and also through mass media to reach the general public. Health care providers, especially mental health specialists, may require training on how to screen for and address mental health issues of MSM and TG people.

ii. Consider providing counselling on mental health issues and mental health referral services to MSM and hijras/TG through HIV prevention interventions of the government and other partner agencies

National AIDS Control Organisation (NACO) supports several targeted Interventions for HIV prevention in populations of MSM and hijras and other MtF transgender people. These interventions, thus, provide an opportunity to screen them for mental health issues. The brief screening within HIV interventions may include asking MSM/TG people about current social support, coping mechanisms, alcohol use, and symptoms of mental distress. Then, those who require counselling can be referred to trained community or professional counsellors within the intervention centres, or at least referred the needy to specialist mental health services. Given the established connection between mental

health and sexual risk, screening and referral services within targeted HIV interventions will also ultimately help in decreasing the sexual risk behaviours among MSM and TG people.

- iii. **Take steps to promote self-acceptance by decreasing self-stigma among MSM/TG**
Self-acceptance of sexuality and gender identity, or HIV-positive status, is critical for good mental health. Self-stigma related to one's sexuality or gender identity lowers one's self-esteem and can lead to depression. Adolescents, youth and adults who are struggling to come to terms with their sexuality or gender identity (or questioning their sexuality) need to be provided appropriate, comprehensive, and nonjudgmental counselling and information so that they can understand about themselves. Non-governmental organisation working with youth – especially community organisations working with sexual minorities can initially offer these services, which can later be made available in government health settings as well.
- iv. **Address the differential use of condoms with different types of male partners in the HIV interventions**
MSM/TG typically reported inconsistent or lack of condom use with male regular partners when compared with male casual or paying partners. While the HIV programmes seemed to have created awareness among MSM/TG to use condoms with casual and paying partners, as trust and intimacy are some of the reasons behind non-use of condoms with male regular partners, both MSM/TG and their regular partners may be at risk for STIs/HIV. Interventions need to explicitly address this issue, and promote condom use with all types of partners. Counsellors need to explore both partner-specific and context-specific reasons for inconsistent condom use, and accordingly tailor sexual risk reduction counselling for MSM and TG people.
- v. **Strengthen social support networks of MSM and hijras/TG people by strengthening their communities as well as promoting acceptance among families**
Social support has been shown to act as a buffer against depression and sexual risk. Within their own MSM/TG communities, however, MSM/TG are being discriminated based on one's HIV status, engagement in sex work and marital status. Community-based organisations can take proactive steps in addressing these issues within the MSM/TG communities, and promote solidarity. Similarly, providing information and counselling to family members and friends of MSM/TG may help them in better understanding their same-sex attracted or transgender offspring or friend, ensuring high chances of continued social support from the biological families and friends.
- vi. **Take steps to decrease discrimination faced by sexual minorities in various settings**
Anti-discrimination policies in schools/colleges are needed to prevent discrimination of students on the basis of their presumed or actual same-sex sexual orientation/identity and gender identity, and to deter perpetrators. Similarly, anti-discrimination policy against sexual minorities can be introduced in health care settings and workplaces.
- vii. **Formulate a national health policy for sexual minorities that also addresses mental health needs**
India's 12th Five-Year Plan articulates that health and livelihoods of 'Lesbian, Gay, Bisexual and Transgender (LGBT) people' must be addressed. Thus, there is a need for a specific national policy to respond to the health (especially mental health) needs of sexual minorities. In the mean time, the existing or the forthcoming national health policy needs to specifically articulate how the government will address the mental health needs of sexual minorities.

1. BACKGROUND & OBJECTIVES

Stigma and discrimination faced by MSM and transgender people in India have been well documented (Bharat, 2011; Chakrapani et al., 2004, 2007, 2011; Newman et al., 2008; PUCL-K, 2003). In India, only a few studies conducted among MSM have focused on the relation between HIV-related stigma and sexual risk (Thomas et al., 2012), influence of sexual minority-related stigma and HIV-related stigma on depression (Logie et al., 2012), and relation between depression and sexual risk (Mimiaga et al., 2013; Safren et al., 2009; Sivasubramanian et al., 2011). Almost all of these are quantitative studies and thus little is known about the process by which stigma influences mental health and sexual risk. Also, no studies have so far examined the influence of various types of stigma on mental health and sexual risk among hijras/transgender women. Our study addresses these gaps.

This mixed methods study aimed to validate a conceptual model (Meyer's minority stress model: Meyer 1995 & 2003) of the impact of stigma related to same-sex sexuality, transgender identity and HIV on mental health - especially depression, and sexual risk behaviours (especially unprotected anal sex) of men who have sex with men (MSM) and hijras/transgender women in India. The qualitative component specifically examined the process by which various types of stigma influence mental health and sexual risk.

This study is particularly salient because current HIV prevention interventions for MSM and hijras/TG women in India primarily involve condom promotion and distribution, HIV education, and HIV voluntary counselling and testing – with inadequate focus on the critical contextual and structural factors – including stigma related to sexual minorities and HIV.

A. Quantitative research questions

- To what extent do HIV-related and sexual/transgender identity stigmas predict depression and sexual risk behaviours (unprotected anal sex) for MSM and hijras/TG women?
- How does the impact of the HIV-related stigma and sexual/transgender identity stigma on depression and sexual risk behaviours differ between MSM & hijras/TG women?

Our directional hypotheses were:

- 1) Higher levels of HIV-related stigma, sexual stigma (among MSM) and transgender identity stigma (among hijras/TG women) will be associated with sexual risk behaviours (unprotected anal sex) and depression
- 2) Higher levels of social support will be associated with lower levels of depression and lower levels of HIV-related stigma (MSM and hijras/TG women), sexual stigma (among MSM) and transgender identity stigma
- 3) HIV-positive MSM and hijras/TG women will experience higher levels of HIV-related stigma; higher levels of sexual stigma (among MSM) and transgender identity stigma; lower levels of social support; and higher levels of depression compared with HIV-negative MSM and hijras/TG women

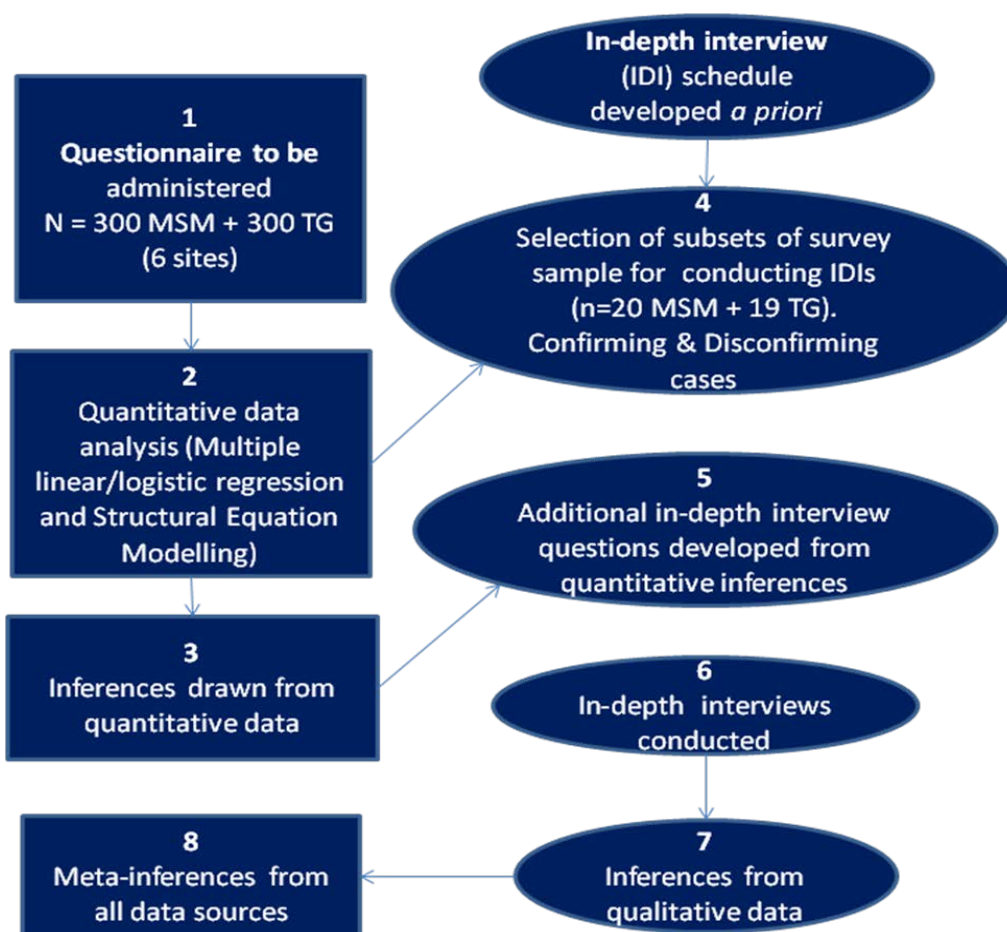
B. Qualitative research questions

- What are the lived experiences of MSM and hijras/TG women in relation to stigma (HIV and sexual/transgender identity-related) and discrimination?
- How the lived experiences of MSM and hijras/TG women (in relation to stigma) can be used to better explain and understand the pathways, contexts, and mechanisms through which stigma may be associated with depression and sexual risk behaviours?

2. STUDY DESIGN AND METHODOLOGY

We used a **sequential mixed methods explanatory design (Diagram 1)** that consists of two distinct phases. In the first **quantitative phase (n=600)**, we used a structured questionnaire to assess three types of stigma, potential moderators and outcome variables. We used hierarchical linear and logistic regression models as well as structural equation models to empirically validate theoretical predictions regarding the relationships between three latent independent variables (HIV-related stigma, sexual stigma and transgender identity-related stigma), two latent moderator variables (social support and resilient coping) and two dependent variables (depression and sexual risk behaviours). In the second **qualitative phase**, we conducted in-depth interviews (**n=39**) to support contextualized understanding regarding the relationships (between stigma, depression and sexual risk behaviours) identified in the quantitative phase – that is, explaining and expanding on the quantitative findings. For details of study sites and sample size, see **Tables 1 & 2**.

Diagram 1. Sequential Mixed Methods Explanatory Design of the Study



2a. Study Sites

This research study was conducted in 6 sites across four states in India. The Humsafar Trust is the lead agency in implementing this research study in Mumbai in collaboration with its partner agencies of Integrated/India Network for Sexual Minorities in five other sites. To capture the regional variations in the experiences of stigma and discrimination and its impact

on depression and sexual risk behaviours, these four states (See Table 1) were chosen. Within the states, we had a combination of metro/urban and semi-urban/ rural sites.

Table 1. Study sites and collaborating agencies

State (Region)	Site	Collaborating partner agencies
Tamil Nadu (South)	Kancheepuram and Kumbakonam (rural areas)	Social Welfare Association for Men (SWAM) and Lotus Integrated AIDS Awareness Sangam
Maharashtra (West)	Mumbai metro and Sangli (semi-urban)	The Humsafar Trust and Mooknayak
Delhi (North)	Delhi (urban)	Pahal Foundation
West Bengal (East)	Kolkata (metro)	SAATHII

2b. Sampling and Recruitment

Quantitative phase – Sampling and Recruitment

In this mixed methods study, the first quantitative phase (cross-sectional survey) was implemented between October 2011 and January 2012 across six study sites in four states in India. Ethics approval was obtained from the institutional review board of the Humsafar Trust.

A total of 300 MSM and 300 hijras/TG were recruited through community-based organisations in 6 sites (3 urban sites and 3 semi-urban/rural sites). See Table 2.

Table 2. Study sites and Sample size – Survey and Qualitative interviews

Name of the State/Study Site Study Population	Tamil Nadu		Maharashtra		West Bengal	Delhi	Total
	Kancheepuram	Kumbakonam	Mumbai	Sangli	Kolkata	Delhi	
Survey (n=600)							
MSM	25	50	25	50	75	75	300
Hijra/Transgender	50	25	50	25	75	75	300
Total	75	75	75	75	150	150	600
Qualitative in-depth interviews							
MSM	-	3	4	3	6	4	20
Hijra/Transgender	-	3	4	4	4	4	19
Total		6	8	7	10	8	39

A mix of venue-based and convenience sample of MSM and hijra/transgender were recruited by the field attendants. Participants were recruited through the study implementing partner agencies (in Tamil Nadu, Maharashtra and Delhi) from drop-in centres and cruising sites. In Kolkata, participants were recruited through referrals from the community-based organizations (CBOs) working among MSM and TG women.

All recruitment was conducted by word of mouth (except Kolkata – see below) through the field attendants (peer outreach workers). Participants were screened for their eligibility and those who were eligible were enrolled in the study. Inclusion criteria for survey participants

were adults aged 18 years and over, capable of providing informed consent and who self-identified as being any subgroup of MSM (kothi, panthi, double-decker, dupli, gay or bisexual) and male-to-female transgender people (hijra, transgender, jogta or aravani). All the interviews took place in a private room in the drop-in centre or office of the study-implementing partner agency.

In Kolkata, the CBO heads were contacted by the Research Assistant who informed them about the study and requested them to convey the message to the members (MSM/TG women) accessing services from their agencies. A flyer that contained the study details was also circulated to each CBO. All those who expressed interest to participate in the study were screened for eligibility criteria and those who were eligible were enrolled in the study.

A survey was developed to collect information on sociodemographic variables (age, income, education), sexual stigma, gender non-conformity stigma, transgender-identity stigma, HIV-related stigma, social support, resilient coping and depression. Pilot-testing (4 per study site; 2 among MSM and 2 among TG women) of the survey questionnaire was done in each site. Based on the feedback, the survey questionnaire was fine-tuned and finalized.

The survey was developed in English, translated into native languages and back translated into English to ensure semantic equivalence. Surveys were administered in native languages by the field attendants under the supervision of the Research Assistants at the particular study site.

Qualitative phase – Sampling & Recruitment

As the purpose of the qualitative phase is to expand on and explain the quantitative findings, purposive sampling method was used to select the subset of the survey participants whose data (stigma scores and sexual risk) confirm the directional hypothesis that higher the stigma higher the sexual risk (i.e., selection of **confirming cases**) and those whose data disconfirm that hypothesis – that is, those who have lower stigma scores but higher sexual risk and those who have higher stigma scores but lower sexual risk (selection of **disconfirming cases**). Sample size details are presented in Table 2. These confirming and disconfirming cases were identified using the criteria mentioned in Table 4.

Willingness for potential participation in the subsequent qualitative phase is part of the informed consent form administered to the potential survey participants. Only those participants who have explicitly provided consent for participation in the subsequent qualitative phase (and who are eligible – that is, confirming or disconfirming cases) were later contacted by the peer recruiters for participation in the in-depth interviews. The contact details of the survey participants were stored confidentially in a locked cabinet and/or password-protected computer. In-depth interviews with these participants helped in explaining and expanding on the quantitative findings. In the in-depth interviews, the contexts under which stigma led to higher or lower sexual risk were explored, and explanations for apparent discrepancies (e.g., lower stigma and higher sexual risk) were sought – by listening to the narratives and lived experiences of these participants.

2c. Measures and Survey tools

The survey questionnaire is based on six pre-existing scales with slightly different versions for HIV-positive and HIV-negative MSM and TG. The questionnaire for HIV-positive and HIV-negative MSM and TG includes measures of: *social support* (12 items); *sexual stigma* (11 items); transgender identity stigma (exposure to transphobia) (11 items); *depression* (6 items); resilience (5 items); and sexual risk behaviours. The survey for HIV-positive MSM and TG includes 40 items measuring four constructs of *HIV-related stigma* (vicarious, felt-

normative, enacted, internalized), while the survey for HIV-negative MSM and TG have 20 items measuring two constructs of *HIV-related stigma* (vicarious, felt-normative).

Survey also collected information on six demographic variables (age, education, income, sex work status, marital status, sexual orientation, sexual and gender identity) and three independent variables (HIV sero-status, self-reported health status, sexual orientation disclosure). The survey for HIV-positive MSM and TG also measured two additional independent variables: length of time since HIV diagnosis; and HIV-positive sero-status disclosure. The HIV-positive MSM and TG survey therefore were comprised of about 100 items: 40 items measuring HIV-related stigma; 12 items measuring social support; 11 items measuring sexual stigma; 11 items measuring exposure to transphobia; 6 items measuring depression; 5 items measuring resilience; 6 items measuring demographic characteristics; and 5 independent variables.

The average time to complete each survey was 45 minutes with an additional 15 minutes for informed consent. The questionnaire was originally drafted in English, translated into respective native languages, back-translated into English, and then finalized in native languages. Questionnaires were pilot-tested in the respective native languages and questions were further refined with inputs from field research team.

Measures

Sexual Stigma (Stigma related to same-sex sexuality)

Sexual stigma includes dimensions of *enacted* stigma, overt acts of discrimination and *felt/perceived stigma*, perceptions and awareness of discrimination (Herek, 2007; Herek & Capitanio, 1999). To measure *perceived* and *enacted* stigma we will use the China MSM Stigma Scale (Neilands, Steward & Choi, 2008) adapted from the Homophobia Scale (Diaz et al., 2001). This instrument uses a 4 point Likert scale. While items from the China MSM Stigma Scale are largely based on the Homophobia Scale, we retained 2 components of the original Homophobia Scale. First, we asked the questions in relationship to one's perceived sexual orientation and gender identity, rather than only sexual orientation as stated in the China MSM Stigma Scale. Secondly, the original Homophobia Scale has one item addressing police harassment that was removed and replaced with school harassment in the China MSM Stigma Scale. Based on the literature review we retained the original police harassment item as that appears relevant to the Indian context.

Gender non-conformity stigma

No scales were found that measured this construct. We used the 'Gender Non-Conformity Stigma Scale' (GNCSS) that our team has developed (Logie et al., 2012) by modifying items from the China MSM Stigma Scale (Neilands et al., 2008). The GNCSS used items from the China scale replacing the phrase 'because of your homosexuality' with 'because of your feminine mannerisms and/or behaviour'. The GNCSS includes dimensions of enacted and perceived stigma, including police harassment items to assess verbal, physical and/or sexual harassment. Feedback from key informants and pilot testing indicated high content validity of this scale.

HIV-related stigma

We used Steward et al. (2008) HIV-related Stigma Assessment Scale to measure HIV-related stigma. Steward's et al. (2008) mixed methods study assessed the cross-cultural applicability of an HIV-related stigma model composed of inter-and intra-personal domains of societal devaluation of people living with HIV within South India. Qualitative findings indicated that in addition to inter-personal domains of *enacted* stigma and intra-personal domains of *perceived/felt* and *internalized* stigma, PLHIV experienced *vicarious* stigma. *Vicarious stigma* refers to hearing stories about experiences of HIV-related discrimination

and mistreatment. This instrument uses a 4-point Likert scale and measures four dimensions of HIV-related stigma: enacted, felt, internalized and vicarious. As this scale was developed and pilot tested with reported reliability and validity within India it is deemed to be appropriate for this research study.

Transgender identity stigma (Exposure to Transphobia Scale)

A standardized scale for exposure to transphobia used in a US study (that examined the relation between exposure to transphobia and sexual risk behaviours) was adapted in our study. That scale was constructed using responses to 11 items on the survey, which asked about respondents' negative experiences associated with being transgender (modified from a homophobia scale by Diaz et al., 2001, to reflect participants' transgender identity). Sample items include statements such as: How often were you made fun of or called names for being transgender or effeminate?; How often were you hit or beaten up for being transgender or effeminate?; and How often did you hear that transgender people were not normal?. Responses will be scored on Likert scales with higher numbers reflecting more frequent experiences.

Social Support

To measure social support, we used the Multi-dimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet & Farley, 1988) which has twelve items and is measured using a 7-point Likert scale. This scale has three sub-scales to assess the perceived adequacy of support from family, friends and a significant other. This scale provides an understanding not only of the quantity of social supports a person may have, but the perceived satisfaction with these supports (Zimet et al., 1998). This is a particularly relevant concept to include in this study as meta-analysis findings highlighted that social support is negatively correlated with HIV-related stigma (Logie & Gadalla, 2008). Additionally, while not tested in India, except for our pilot study (Logie et al., 2012), the MSPSS has been used cross-culturally and within diverse contexts: US (Brown, 2008), Australia (Gladstone et al., 2007), Canada (Clara et al., 2003), Pakistan (Husain et al., 2006), South Africa (Bruwer et al., 2008) and Turkey (Filazoglu & Griva, 2008).

Resilient coping

Resilience, defined as beliefs in one's personal competence and acceptance of self and life that enhance individual adaptation (Wagnild, & Young, 1993). The Brief Resilient Coping Scale (BRCS) was used to measure resilient coping, a process of positive adaptations to high stress (Sinclair & Wallston, 2004). This scale assesses both dispositional (e.g. self-confidence, optimism) and situational (e.g. active problem solving) dimensions of coping and has demonstrated high reliability and validity among adults with chronic illness in the U.S. (Sinclair & Wallston, 2004). Cronbach's alpha was 0.91.

Depression

The Beck Depression Inventory for Primary Care (BDI-PC), also known as the Beck Depression Inventory Fast-Screen (BDI-FS) is a seven-item depression screening tool developed to provide a quick assessment that focuses on non-somatic items associated with depression (Beck et al., 1997). This tool is particularly relevant in cases where there may be overlap between symptoms of depression and other physical ailments; for example, fatigue may be associated with an illness rather than depression (Beck et al., 1997). Other benefits of using the BDI-FS include: it was found to have a lower rate of false negatives than other depression measures; is appropriate for populations with low literacy (Golden et al., 2007); and has a quick completion time (estimated at 5 minutes) (Beck et al., 1997).

The BDI-FS has been found to be reliable in studies with various population groups (e.g. people living with HIV, Hepatitis C patients, people with chronic pain) and countries (e.g. Ireland, US, UK). While not tested in India, the BDI-FS is developed using the same constructs within the original BDI that has been utilized within India with PLHIV (Chandra et

al., 2006; Steward et al., 2008) and adolescents (Basker, Moses, Russell & Russell, 2007). The BDI-FS includes affective and cognitive constructs. Items measuring cognitive components assess: pessimism, past failure, self-dislike and self-criticalness. Items measuring affective components include: sadness and loss of pleasure.

The original BDI-FS also includes an item on suicidality that was not be included in this survey as the peer research assistants were not felt adequately trained to cope effectively with a suicidal participant and would not have the resources to provide appropriate crisis management. Golden et al. (2007) reported that omitting the suicidality item did not impact its reliability and may in fact increase the acceptability of this tool to participants.

The BDI-FS has an instruction manual detailing implementation and scoring. Participants were asked to describe their feelings over the past two years so responses correspond with the DSMIV requirements for major depressive disorder symptoms. Each item on the 4 point scale is rated from 0-3, with a maximum score of 18 (for 6 items). Scores were calculated, and the guidelines include scores of: 10-18 represent severe depression, 7-9 moderate depression, 4-6 mild depression, 0-3 mild depression.

Sexual Risk Behaviours (Unprotected anal sex)

Risky sexual behaviour was defined as vulnerability to HIV infection (or posing risk of HIV transmission to others) based on reported sexual behaviour. Primary criteria was the number of sexual partners and engaging in unprotected receptive anal/vaginal sex, both of which are associated with high risk for HIV infection (Ekstrand, Stall, Paul, Osmond & Coates, 1999).

We used the sexual risk behaviour measurement scale that we had used in our previous studies among MSM in Chennai and MSM and transgender women living with HIV in 2 cities (Chennai and Mumbai). One question assessed condom use during the last encounter of anal sex. Four questions assessed condom use for anal sex with male partners in the past 1 month (original scale used past 3 months): regular, casual/anonymous, paying, and paid. Consistent condom use was measured for each type of male partner. Participants who noted always using condoms were classified as consistent condom users.

2d. Data analyses

We conducted descriptive analysis (such as frequencies) and correlations. To test our adapted minority stress model, we used both hierarchical block regression analyses (linear and logistic), as well as structural equation modelling (SEM). All statistical analyses were conducted using IBM-SPSS (version 20), and SEM was performed using Amos-5 software distributed by SPSS.

Descriptive analysis in relation to scores of the various scales

Scores of the various scales (stigma, social support, resilient coping, depression, etc.) were calculated and graded according to the guidelines provided by the authors of the scales. Where grading was not provided by the authors of the scales (all stigma scales), we followed the grading as shown in the Table 3.

Linear regression analyses

[Note: Sexual stigma = SxS; Gender non-conformity stigma =GNS; Transgender identity stigma = TGS); HIV-related stigma = HIVS]

MSM: Hierarchical block-wise linear regression analyses were conducted to measure associations between independent (SxS/GNS and HIVS as block 1), mediators/moderators (social support and resilient coping - block 2, Interaction items - block 3) and dependent (depression) variables.

Hijra/TG: Hierarchical block-wise linear regression analyses were conducted to measure associations between independent (TGS and HIVS as block 1), mediators/moderators (social support and resilient coping - block 2, interaction items - block 3) and dependent (depression) variables.

In both (MSM and TG), control variables (sociodemographic and site characteristics) were included as block 0.

Logistic regression analyses

MSM: Hierarchical block-wise logistic regression analyses were conducted to examine the relationship between SxS/GNS and HIVS (block 1), social support and resilient coping (block 2) and inconsistent condom use with different types of male partners (regular, casual and paying) and lack of condom use in the last anal sex.

Hijra/TG: Similarly, hierarchical block-wise logistic regression analyses were conducted to examine the relationship between TGS and HIVS (block 1), depression and alcohol use (block 2), social support and resilient coping (block 3) and inconsistent condom use with different types of male partners (regular, casual and paying) and lack of condom use in the last anal sex.

In both (MSM and TG), control variables (sociodemographic and site characteristics) were included as block 0.

Qualitative data analysis

A total of 39 in-depth interviews (confirming and disconfirming cases) were conducted, and the data were analyzed using constant comparison and 'process tracing' techniques to identify the mechanisms by which stigma influenced mental health and sexual risk.

Table 3. Scales: Scores and Grading for different levels of outcomes

Scale	Minimum and Maximum scores (Range)	Scores and grading ¹				Cut-off for logistic regression analyses (High level of stigma)
		No	Low	Moderate /Medium ²	Severe /High ²	
Stigma	<i>(Stigma scale authors did not provide guidelines for calculating different levels of outcomes)</i>					
HIV-related stigma (HS)	(0-106)	≥36				
HS subscale: Vicarious Stigma	0-30	0	1-10	11-20	21-30	≥ 11
HS subscale: Felt Normative Stigma	0-33	0	1-11	12-22	23-33	≥23
HS subscale: Enacted Stigma	0-10	0	1-3	4-6	7-10	
HS subscale: Internalized Stigma	0-33	0	1-11	12-22	23-33	
Gender non-conformity stigma (GNS)	15-60	15	16-30	31-45	46-60	>33
Sexual stigma (SxS)	15-60	15	16-30	31-45	46-60	>24
Composite score: GNS/SxS						GNC ≥33 & SxS ≥24
GNC/SxS - Perceived						GNC ≥16 & SxS ≥14
GNC/SxS - Enacted						GNC ≥19 & SxS ≥11
Transgender identity stigma (TGS)	14-56	14	15-28	29-42	43-56	>40
TGS – Perceived (TGS-P)						TG-P≥15
TG – Enacted (TG-E)						TG-E≥26
Other						
Depression (BDI-FS) ³	0-18	0-3 (no)	4-6 (mild)	7-9 (moderate)	10-18 (severe)	
Resilient coping (BRCS)	0-15	0-4	5-10 (low)	11-12 (moderate)	13-15 (high)	
Social Support (MSPSS)	0-60		12-29 (low)	30-44 (medium)	45-60 (high)	
Life satisfaction (SWLS)	0-25	5-7 reflects extreme dissatisfaction with life, 8-10 reflects dissatisfaction with life, 11-14 reflects slight dissatisfaction with life, 15-18 reflects slight satisfaction with life, 19-21 satisfaction with life, and 22-25 extreme satisfaction with life.				

¹ These grading were then compared with the severity of depression and condom use in last anal sex, to help in identifying 'confirming' and 'disconfirming' cases. See next table.

² Indicate the actual term(s) used by the scale authors.

³ With no suicidality item.

Table 4. Identification of confirming and disconfirming cases for qualitative in-depth interviews from the survey sample

(Note: 'Medium/high'* score of HS refers to medium/high scores of enacted stigma subscale or internalized stigma subscale. Refer to the previous table for actual cut-off values)			
Cases	Scores of HIV-related stigma (HS) and gender non-conformity (GNC) or sexual stigma (SxS)	Scores of depression	Protected or unprotected sex (in the last anal sex encounter)
MSM			
Confirming cases	Medium/High* score of HS and/or SxS/GNS	Moderate/Severe Depression	Unprotected
	Low score of HS and/or SxS/GNS	No or Mild Depression	Protected
Disconfirming cases	Medium/High* score of HS and/or SxS/GNS	No or Mild Depression	Protected
	Low score of HS and/or SxS/GNS	Moderate/Severe Depression	Unprotected
Hijras/TG			
Confirming cases	High score of HS and/or TGS	Moderate/Severe Depression	Unprotected
	Low score of HS and/or TGS	No or Mild Depression	Protected
Disconfirming cases	High score of HS and/or TGS	No or Mild Depression	Protected
	Low score of HS and/or TGS	Moderate/Severe Depression	Unprotected

Table 5. Site-specific details of Confirming and Disconfirming cases

Name of the study site	MSM (n=20)				Hijra/TG (n=19)			
	Confirming Cases (n=12)		Disconfirming Cases (n=8)		Confirming Cases (n=8)		Disconfirming Cases (n=11)	
	HIV-negative	HIV-positive	HIV-negative	HIV-positive	HIV-negative	HIV-positive	HIV-negative	HIV-positive
Tamil Nadu	1	1		1	2		1	
Kolkata		4	2			2		2
Mumbai	1	1	2		1		2	1
Sangli	2		1		1		3	
Delhi	2		2		2		2	
Total	6	6	7	1	6	2	8	3

3. RESULTS

3a. Sample Characteristics

Characteristics of survey participants (n=600)

Participants' mean age was 29.7 (SD 8.1). Sixty-three percent of our study participants were recruited from 3 urban sites while the remaining one-third (38%) from 3 semi-urban sites. Less than 10% (9%) of the study population are illiterate. Sixteen percent of participants had completed primary school education (5th grade) and almost one quarter had completed elementary (21%) or high school (24%). Overall, 47% (n=281/600) did not complete high school. Between groups, when compared with hijra/TG (7%) a higher proportion of MSM (17%) have completed a college degree. Similarly, when compared with MSM (3%) a higher proportion of hijra/TG (14%) were illiterate. Fifteen percent of the study population were staff of voluntary organization while another equal proportion (15%) reported sex work as main occupation. Less than 10% were unemployed at the time of interview. Three-fourth of the participants (74%) reported an HIV-negative serostatus while 10% reported an HIV-positive status. Over half (54%) of the participants reported having had sex in exchange for money in the past 3 months. Between groups, sex in exchange for money was twice higher among hijra/TG (71%) when compared with MSM (38%).

Family and relationship status

Two-thirds (72%) of the participants were not married. When compared with MSM (60%), a higher proportion (85%) of hijra/TG were unmarried. Nearly three-quarter (70%) of the married participants had one or more children (70%; n=117). One-third (33%) of the participants were living with their parents and 31% lived alone. Less than fifteen percent (12%) were currently living with their spouse.

Sexual Identity, attraction and behaviour

Fifty-eight percent of MSM (n=174/300) self-identified as kothi; 14% as double-decker; and 9% as panthi or gay. Similarly, among hijra/TG, 67% self-identified as hijra; one-fourth (25%) as transgender and 8% as jogta. Overall, 85% of the study participants were only sexually attracted to men and 14% were attracted to both men and women. Between groups, when compared with MSM (71%), almost all (98%) hijra/TG participants were sexually attracted to men. Among MSM, one-fourth (26%) were attracted to both men and women. More than three-fourth (80%) of the participants reported having had sex with men only, and about one-fifth (19%) with both men and women. Between groups, more MSM (38%) reported bisexual behaviour when compared with hijra/TG (2%).

Table 6: Socio-demographic characteristics of participants

Socio-demographic characteristics of survey participants						
Variable	Overall Sample (n=600)		MSM (n=300)		TG/Hijra (n=300)	
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
Age (y)	29.79 (8.132)	18-75	30.01 (8.455)	18-60	29.58 (7.804)	18-75
Monthly Income (INR)	7323 (5930)	500-40000	6268 (5393)	500-35000	8279 (6235)	600-40000
Variable	N	%	N	%	N	%
Location						
Urban	375	62.5	175	58.3	200	66.7
Semi-urban	225	37.5	125	41.7	100	33.3
Highest level of completed education						
5th grade	98	16.3	38	12.7	60	20
8th grade	125	20.8	58	19.3	67	22.3
10th grade	143	23.8	75	25	68	22.6
12th grade	104	17.3	67	22.3	37	12.3
College degree	72	12	50	16.7	22	7.3
Illiterate	53	8.8	10	3.3	43	14.3
Other	5	0.8	2	0.7	3	1
Employment						
Unemployed	43	7.1	37	12.3	6	2
Daily wage laborer	41	6.8	34	11.3	7	2.3
Government staff	5	0.8	5	1.7		
Private company staff	59	9.8	56	18.7	3	1
Voluntary organization staff	92	15.3	47	15.7	45	15
Sex work	92	15.3	13	4.3	79	26.3
Self employed	84	14	70	23.3	14	4.7
Other	184	30.7	38	12.7	146	48.7
HIV status						
HIV-positive	58	9.7	30	10	28	9.3
HIV-negative	446	74.3	217	72.3	229	76.3
Never tested	90	15	50	16.7	40	13.3
Don't want to report/No response	6	1	3	1	3	1
Been paid for sex in the last 3 months						
No	275	45.8	187	62.3	88	29.3
Yes	325	54.2	113	37.7	212	70.7
Variable	N	%	N	%	N	%
Marital status						
Not married	434	72.3	180	60	254	84.7
Married	166	27.6	120	40	46	15.3

Children						
No children	49	29.5	25	20.8	24	52
1 child	43	25.9	39	32.5	4	8.7
2 children	53	31.9	39	32.5	14	30.4
3 and above	21	12.6	17	14.1	4	8.7
Current living situation						
Living alone	185	30.8	44	14.7	141	47
Living with parents	197	32.8	141	47	56	18.7
Living with male sexual partner	44	7.3	15	5	29	9.7
Living with wife	71	11.8	62	20.7	9	3
Living with parents and wife	30	5	29	9.7	1	0.3
Living with friends	36	6	2	0.7	34	11.3
Other	37	6.2	7	2.3	30	10
Sociodemographic characteristics of qualitative in-depth interview participants						
Characteristics	Overall (n = 39)	MSM (n=20)	TG (n=19)			
Age						
Mean	32.38	31.47	33.25			
Range	19-70	20-47	19-70			
Highest education level completed	n (%)	n (%)	n (%)			
Illiterate	4 (10.3)	1 (5.0)	3 (15.8)			
Primary (5th grade)	6 (15.4)	3 (15.0)	3 (15.8)			
Elementary (8th grade)	4 (10.3)	1 (5.0)	3 (15.8)			
High school (10th grade)	9 (23.1)	5 (25.0)	4 (21.1)			
Higher secondary (12th grade)	6 (15.4)	5 (25.0)	1 (5.3)			
College degree	10 (25.6)	5 (25.0)	5 (26.3)			
Main occupation						
Daily wage labourer	17 (43)	12 (60.0)	5 (26.3)			
Begging	6 (16)	0 (0.0)	6 (31.6)			
Sex work	7 (18)	3 (15.0)	4 (21.1)			
Social worker	6 (15.4)	3 (15.0)	3 (15.8)			
Unemployed	1 (3)	1 (5.0)	0 (0.0)			
Student	1 (3)	0 (0.0)	1 (5.3)			
Community agency staff	1 (3)	1 (5.0)	0 (0.0)			
Living status						
Parents	22 (56.4)	14 (70.0)	8 (42.1)			
Wife	2 (5.1)	2 (10.0)	0 (0.0)			
Living alone	8 (20.5)	1 (5.0)	7 (36.8)			
Guru	1 (3)	0 (0.0)	1 (5.3)			
Friends	6 (15.4)	3 (15.0)	3 (15.8)			
Primary identity						
Aravani	3 (8)		3 (15.8)			
Kothi	12 (31)	12 (60.0)	0 (0.0)			

Jogta/Jogappa	4 (10.3)	0 (0.0)	4 (21.1)
Panthi	1 (3)	1 (5.0)	0 (0.0)
Hijra	7 (18)		7 (36.8)
Transgender	5 (13)		5 (26.3)
Gay	3 (8)	3 (15.0)	
Double-decker/Dupli	2 (5.1)	2 (10.0)	
“MSM” [as identity]	2 (6.0)	2 (10.0)	
Marital status			
Married	13 (33.3)	10 (50.0)	3 (15.8)
Unmarried	26 (67)	10 (50.0)	16 (84.2)

Characteristics of in-depth interview participants (n=39)

The mean age of participants was 32.3 (± 9.5). Ten percent were illiterate. Almost one-quarter (23%) have completed primary education and a little over one-third (38%) have completed high school. About three-fifths (58%) were daily-wage labourers, about one-fifth were sex workers, and another one-fifth were staff of NGOs/CBOs. About half (54%) of participants were living with their parents and about two-fifths (21%) were living alone. Among hijras (n=19), six were living with their Guru/Chelas or hijra/transgender friends. Sixty-seven percent of the participants were unmarried. (See Table 6)

MSM (n=20): The mean age of participants was 31.4 (± 7). Almost half (47%) of the participants had completed high school and more than one-fourth (26%) had completed college degree. Fifty-eight percent were daily wage laborers. Three out of 20 participants were sex workers. A majority of participants (68%) were living with their parents. Only 2 out of 10 married participants were living with their wife. Sixty-three percent of participants self-identified as kothis and 15% as gay.

Hijra/TG (n=19):

The mean age of participants was 33.2 (± 11.5). About one-third (30%) of participants had completed high school and one-fourth (25%) had completed college degree. Thirty percent were daily wage laborers and another 30% reported begging as their main occupation. Twenty percent were sex workers. Forty-five percent of the participants were living with their parents and more than one-third (35%) were living alone. Only 3 out 20 participants were married. One-third (35%) of the participants self-identified as hijras and one-fourth (25%) as transgender (English term).

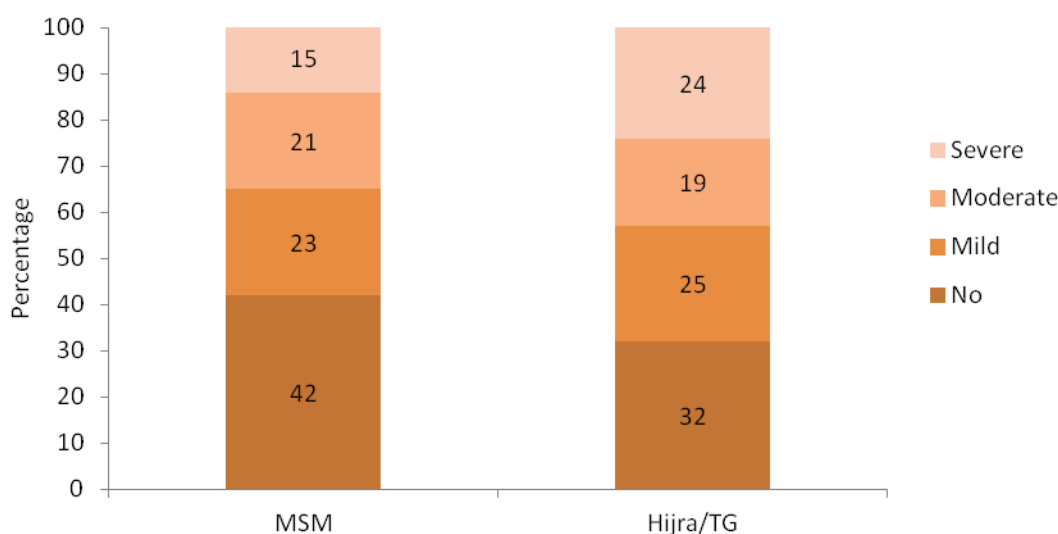
3b. Descriptive findings

Details of scores of stigma, social support, resilient coping, depression and other scales

A summary of various scores are presented in Table 7.

Table 7. Summary of overall and subscale scores across variables (n=600)

Variable	MSM				TG			
	Mean	SD	Range	Score on 0-100 scale	Mean	SD	Range	Score on 0-100 scale
Sexual Stigma (SxS)	24.08	5.24	15-41	25-68				
SxS - Enacted	12.05	2.91	10-21	25-53				
SxS - Perceived	12.03	3.21	5-20	25-100				
Gender Non-conformity Stigma (GNS)	33.48	7.95	18-59	30-98				
GNS - Enacted	18.26	5.70	10-39	25-98				
GNS -Perceived	15.21	3.11	7-20	35-100				
Transgender identity Stigma (TGS)					38.65	7.17	19-56	34-100
TGS - Enacted					24.83	5.90	10-40	25-100
TGS - Perceived					13.83	2.19	6-16	38-100
HIV-related stigma (overall)	34.96	13.72	0-81	0-76	37.26	12.01	6-89	6-84
Vicarious Stigma	11.32	6.81	0-30	0-100	13.36	6.39	0-28	0-93
Felt Normative Stigma	22.45	7.83	0-33	0-100	22.50	7.05	0-33	0-100
Enacted Stigma	1.27	1.55	0-5	0-50	2.07	2.37	0-9	0-90
Internalized Stigma	10.57	6.89	0-27	0-82	12.93	6.77	0-33	0-100
Social Support	41.42	10.46	12-60	20-100	38.04	9.21	12-58	20-97
Depression	5.12	4.10	0-18	0-100	5.98	4.29	0-18	0-100
Resilient Coping	12.81	2.88	5-15	33-100	12.67	2.94	5-15	33-100
Life Satisfaction	14.98	4.96	5-25	20-100	14.35	4.12	5-25	20-100

Diagram 2. Distribution of severity of depression scores among MSM & Hijras/TG**Table 8. Details of degree/severity of selected scales and variables**

Scale/Variable	Degree/Severity	MSM n (%)	Hijras/TG n (%)
Depression	No	125 (42)	97 (32)
	Mild	69 (23)	75 (25)
	Moderate	62 (21)	57 (19)
	Severe	44 (15)	71 (24)
Social Support	Low	44 (15)	52 (17)
	Medium	117 (39)	179 (60)
	High	139 (46)	69 (23)
Resilient Coping	Low	63 (21)	64 (21)
	Moderate	32 (11)	40 (13)
	High	205 (68)	196 (65)
Alcohol use	No	125 (42)	78 (26)
	Infrequent	100 (33)	85 (28)
	Frequent	75 (25)	137 (46)

Alcohol and drug use behaviour

Overall, 66% (n=397/600) reported consuming alcohol in the past 3 months. Between groups, when compared with MSM (58%; n=175/300), a higher proportion of Hijra/TG (74%; n=222/300) reported consuming alcohol in the past 3 months. Similarly alcohol use in last anal sex was reported high among Hijra/TG (58%) when compared with MSM (43%). Alcohol consumption is found to be high among participants who reported sex work (MSM: 69% [n=9/13]; Hijra/TG: 81% [n=64/79]) as main occupation.

Of the total sample, 5% (n=29/600) reported ever used drugs orally. Of 29 participants who reported using drugs, 90% (n=26/29) have reported using them in the past 3 months. When compared with MSM (19%; n=5/26), a higher proportion of Hijra/TG (81%; n=21/26) reported using drugs in the past 3 months. Ganja was the most commonly used drugs in both the categories.

Sexual behaviour

Anal sex by partner type in the past month

Overall, 91% (n=547) reported having had anal sex with a man in the past 1 month. Of 547 who had anal sex with a man, 78% (n=429/547) reported having had anal sex with regular partners, 77% (n=421/547) with casual partners and 63% (n=346/547) with paying partners.

MSM (n=300): Among MSM, 90% (n=271/300) reported having had anal sex with a man in the past 1 month. Of 271 who reported having had anal sex with a man, 77% (n=208/271) had anal sex with regular partners, 80% (n= 217/271) with casual partners and 50% (n=136/271) with paying partners.

Hijra/TG (n=300): Among Hijra/TG, 92% (n=276/300) reported having had anal sex with a man in the past 1 month. Of 276 who reported having had anal sex with a man, 80% (n=221/276) had anal sex with regular partners, 74% (n=204/276) with casual partners and 76% (n=210/276) with paying partners.

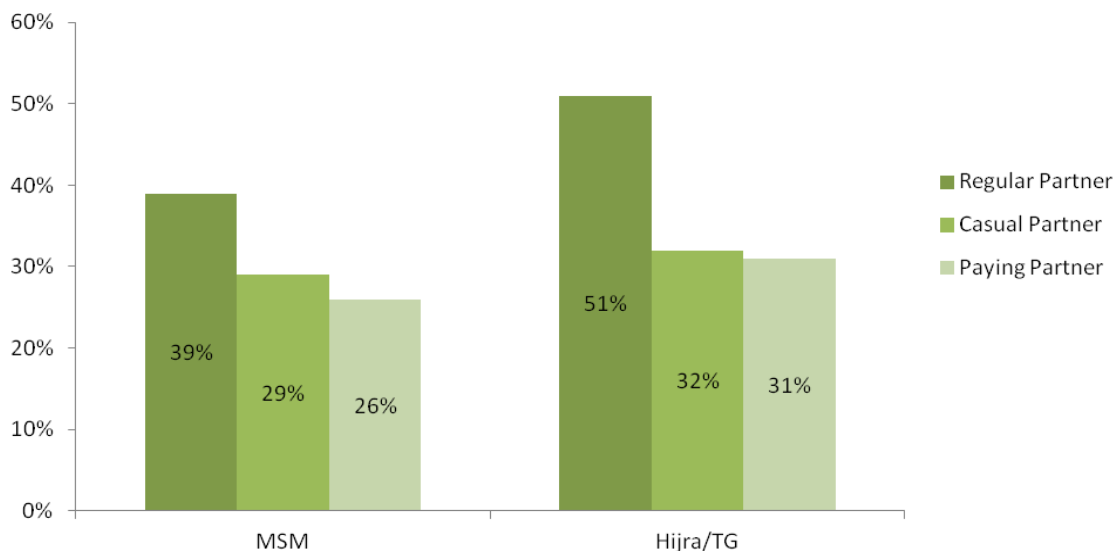
Consistency of condom use for anal sex by male partner type in the past month

Among the total sample, when compared with casual and paying partners (31% & 29% respectively), inconsistent condom use was reported high (45%) among those who had anal sex with their regular partners. Between the groups, the proportion of participants reporting inconsistent condom use with their regular partner was higher among hijra/TG (51%) than MSM (39%).

MSM (n=271): When compared with casual and paying partners (29% and 26%, respectively), a higher proportion (39%) reported inconsistent condom use with their regular partners.

Hijra/TG (n=276): Similar to MSM, when compared with casual and paying partners (32% and 31% respectively) a higher proportion (51%) of Hijra/TG reported inconsistent condom use with their regular partners.

Diagram 3. Inconsistent condom use with different types of male sex partners in the past month



Last anal sex and condom use

Ninety-eight percent (n=587/600) reported ever had anal sex with a man. Of 587, who reported having had anal sex with a man, 30% (n=175/587) reported not using condom in last anal sex.

MSM (n=300): Ninety-eight percent (n=294/300) reported having ever had anal sex with a man. Of which, 27% (n=80/294) did not use condom in last anal sex.

Hijra/TG (n=300): Among the 293 (98%) participants who reported having ever had anal sex with a man, 32% (n=95/293) did not use condom in last anal sex.

Correlations between key constructs/variables

MSM

Total score of gender non-conformity and sexual stigma were positively correlated with total HIV-related stigma and its three (vicarious, felt normative, internalised) out of four subscale scores, and depression score; and negatively correlated with the scores of social support, resilient coping and life satisfaction scales (See Table 9).

Hijras/TG

Total score of transgender identity stigma were significantly positively correlated with total HIV-related stigma and its vicarious stigma subscale score, and depression score; and negatively correlated with the scores of social support, resilient coping and life satisfaction scales (See Table 10).

T-tests: Subgroup-wise (MSM & TG) comparisons of mean scores of study variables

Using t-tests, we compared the means of the scores of MSM and TG participants (See Table 11). When the means of the subscale scores of HIV-related stigma were compared between MSM & TG, except for the vicarious stigma, the other three subscale scores were not significantly different. There was also significant difference in the scores of social support and depression between MSM & TG: mean score of social support being higher among MSM, and that of depression higher among TG.

Within the MSM group, when the means of the subscale scores of HIV-related stigma scales were compared between HIV-negative MSM and HIV-positive MSM, only the felt normative stigma score was significantly different. There was also significant difference in the scores of depression between HIV-negative MSM and HIV-positive MSM, mean score being higher among the latter.

Within the TG group, when the means of the subscale scores of HIV-related stigma scales were compared between HIV-negative TG and HIV-positive TG, none of the four subscale scores were significantly different. There was, however, significant difference in the scores of depression between HIV-negative TG and HIV-positive TG, mean score being higher among the latter.

Table 11. Subgroup-wise (MSM & TG) comparisons of mean scores of study variables

(subscales of HIV-related stigma, gender non-conformity and sexual stigma, transgender identity stigma, social support, resilient coping and depression)

Scores	Category			MSM			TG		
	MSM (n=300)	TG (n=300)		HIV - (N=270)	HIV+ (N=30)		HIV - (N=272)	HIV+ (N=28)	
	Mean±SD	Mean±SD	p	Mean±SD	Mean±SD	p	Mean±SD	Mean±SD	p
Vicarious Stigma	11.32±6.81	13.36±6.39	<0.0001	11.40±6.68	10.60±7.97	0.600	13.47±6.32	12.29±7.12	0.403
Felt Normative Stigma	22.45±7.83	22.50±7.05	0.943	22.13±7.78	25.33±7.84	0.034	22.41±6.98	23.32±7.83	0.559
Enacted Stigma	1.27±1.55	2.07±2.37	0.129		1.27±1.55	na		2.07±2.37	na
Internalized Stigma	10.57±6.89	12.93±6.77	0.194		10.57±6.89	na		12.93±6.77	na
Gender Non-conformity Stigma	33.48±7.95		na	33.43±8.08	34.00±6.50	0.739	na	na	na
Sexual Stigma	24.08±5.24		na	24.05±5.45	24.31±3.86	0.835	na	na	na
Transgender identity Stigma		38.65±7.17	na	na	na	na	38.77±7.09	37.54±7.91	0.434
Social Support	41.42±10.45	38.04±9.21	<0.0001	41.76±10.32	38.43±11.33	0.133	38.34±9.03	35.14±10.52	0.131
Life Satisfaction	14.98±14.35	14.35±4.12	0.089	15.33±4.88	11.83±4.59	<0.0001	14.49±4.03	13.00±4.74	0.119
Depression	5.12±4.10	5.98±4.29	0.012	4.81±3.82	7.83±5.46	<0.0001	5.69±4.14	8.86±4.37	0.002
Resilient Coping	12.81±2.89	12.68±2.94	0.537	12.88±2.77	12.23±3.77	0.246	12.72±2.88	12.18±3.45	0.432

(na=not applicable)

3c. Hierarchical linear regression models predicting depression

MSM (n=300): Hierarchical linear regression models predicting depression

Four different linear regression models of MSM are presented in Tables 12 to 15. The overall inferences from each of these models are summarised below.

Two models with the entire sample (n=300)

Two models were tried in the entire sample of MSM (n=300). In these two models (tables 12 and 13), gender non-conformity and sexual stigma (SxS/GNS), and HIV-related stigma total score (Model 1) or the individual scores of vicarious and felt normative HIV-related stigma (Model 2) were significant predictors of depression. Resilient coping and social support too were significant at the final step in both the models.

Two models with the HIV-negative sample (n=270)

Two other models were tried with only the HIV-negative sample (n=270). In model 3 (Table 14), instead of the HIV-related stigma total score, individual scores of vicarious and felt normative HIV-related stigma were used, and in the final step both were found to be significant predictors of depression in addition to gender non-conformity and sexual stigma (SxS/GNS). However, social support was not found to be significant in the final step, but only the resilient coping was significant.

In model 4 (Table 15), instead of the total score of gender non-conformity and sexual stigma (SxS/GNS), we included scores of perceived and enacted component scores of gender non-conformity and sexual stigma (SxS/GNS) and total score of HIV-related stigma. In this model, in the final step, perceived gender non-conformity and sexual stigma (SxS/GNS) and resilient coping were found to be significant, but not the total score of HIV-related stigma.

Table 12. Hierarchical Multiple Linear Regression Analyses Predicting Depression Among MSM From Different Types Of Stigma (n=300: includes 270 HIV-negative MSM and 30 HIV-positive MSM)

Predictor	Adjusted R ²	R ² change	β (standardized coefficient)
Step 1 Control variables	0.03	0.05*	
Step 2			
• Sexual stigma or Gender non-conformity stigma	0.24	0.21***	0.29***
• Total HIV-related stigma score †			0.11*
Step 3	0.33	0.08***	
Social support			-0.15*
Resilient coping			-0.23***
Step 4	0.34	0.02 (ns)	
Interactions terms‡			

† Total HIV-related stigma score for HIV-negative MSM = Scores of vicarious and felt normative stigma

Total HIV-related stigma score for HIV-positive MSM = Scores of vicarious, felt normative, enacted and internalised stigma

‡ Interaction terms were: Sexual stigma or Gender non-conformity stigma (SxS/GNS) x Resilient coping (RC); SxS/GNS x Social support (SoS); Total HIV-related stigma score (THS) x RC; THS x SoS; RC x SoS

* p < .05. ** p < .01. *** p < .0001.

Note. All changes in R² reported are adjusted for shrinkage. Entries are standardized betas in Step 3.

Table 13. Hierarchical Multiple Linear Regression Analyses Predicting Depression Among MSM (n=300: includes 270 HIV-negative MSM and 30 HIV-positive MSM) from Different Types Of Stigma

Predictor	Adjusted R ²	R ² change	β (standardized coefficient)
Step 1 Control variables	0.03	0.05*	
Step 2			
• Sexual stigma or Gender non-conformity stigma			0.34***
• Vicarious HIV-related stigma	0.29	0.25***	-0.26***
• Felt normative HIV-related stigma			0.28***
Step 3	0.39	0.10***	
Social support			-0.17*
Resilient coping			-0.280***
Step 4	0.39	0.01 (ns)	
Interactions terms‡			

‡ Interaction terms were: Sexual stigma or Gender non-conformity stigma (SxS/GNS) x Resilient coping (RC); SxS/GNS x Social support (SoS); Vicarious HIV-related stigma (VS) x RC; VS x SoS; Felt normative HIV-related stigma (FNS) x RC; FNS x SoS; RC x SoS

* p < .05. *** p < .0001.

Note. All changes in R² reported are adjusted for shrinkage. Entries are standardized betas in Step 3.

Table 14. Hierarchical Multiple Linear Regression Analyses Predicting Depression Among HIV-negative MSM (n=270) from Different Types Of Stigma

Predictor	Adjusted R ²	Change in R ²	β (standardized coefficient)
Step 1 Control variables	0.05	0.07**	
Step 2			
• Sexual stigma or Gender non-conformity stigma	0.30	0.25***	0.36***
• Vicarious HIV-related stigma			-0.28***
• Felt normative HIV-related stigma			0.29***
Step 3	0.41	0.08***	
Social support			-0.11 (ns)
Resilient coping			-0.27***
Step 4 Interactions terms [‡]	0.43	0.02 (ns)	

[‡] Interaction terms were: Sexual stigma or Gender non-conformity stigma (SxS/GNS) x Resilient coping (RC); SxS/GNS x Social support (SoS); Vicarious HIV-related stigma (VS) x RC; VS x SoS; Felt normative HIV-related stigma (FNS) x RC; FNS x SoS; RC x SoS

** p < .01. *** p < .0001. Note. All changes in R² reported are adjusted for shrinkage. Entries are standardized betas in Step 3.

Table 15. Hierarchical Multiple Linear Regression Analyses Predicting Depression Among HIV-negative (n=270) MSM From Different Types Of Stigma (Perceived and enacted break-up details for sexual stigma/gender non-conformity stigma)

Predictor	Adjusted R ²	R ² change	β (standardized coefficient)
Step 1 Control variables	0.37	0.05*	
Step 2			
• Sexual stigma or Gender non-conformity stigma: Perceived	0.25	0.21***	0.23***
• Sexual stigma or Gender non-conformity stigma: Enacted			0.09 (ns)
• Total HIV-related stigma score †			0.10 (ns)
Step 3	0.34	0.09***	
Social support			-0.15*
Resilient coping			-0.24***
Step 4 Interactions terms [‡]	0.38	0.02 (ns)	

† Total HIV-related stigma score for HIV-negative MSM = Scores of vicarious and felt normative stigma

Total HIV-related stigma score for HIV-positive MSM = Scores of vicarious, felt normative, enacted and internalised stigma

Sexual stigma or Gender non-conformity stigma: Perceived (SxS/GNS - P) x Resilient coping (RC); Sexual stigma or Gender non-conformity stigma: Enacted (SxS/GNS - E) x Resilient coping (RC); SxS/GNS - P x Social support (SoS); SxS/GNS - E x Social support (SoS); Total HIV-related stigma score (THS) x RC; THS x SoS; RC x SoS

* p < .05. *** p < .0001. Note. All changes in R² reported are adjusted for shrinkage. Entries are standardized betas in Step 3.

Hijras/TG people (n=300): Hierarchical linear regression models predicting depression

Four different linear regression models of TG are presented in Tables 16 to 19. The overall inferences from each of these models are summarised below.

Two models with the entire sample (n=300)

Two models were tried in the entire sample of TG (n=300). In these two models (tables 16 and 17), transgender identity stigma (TGS) was a significant predictor of depression. However, HIV-related stigma total score in Model 1 was not a significant predictor in the final step in Model 1, but the individual scores of vicarious and felt normative HIV-related stigma in Model 2 were significant predictors of depression. Resilient coping was significant at the final step in both the models. But social support was not significant in model 1.

Two models with the HIV-negative sample (n=272)

Two other models were tried with only the HIV-negative sample (n=272).

In model 3 (Table 18), instead of the HIV-related stigma total score, individual scores of vicarious and felt normative HIV-related stigma were used, and in the final step both were found to be significant predictors of depression in addition TGS. However, social support was not found to be significant in the final step, but only the resilient coping was significant.

In model 4 (Table 19), instead of the total score of transgender identity stigma (TGS), we included scores of perceived and enacted component scores of TGS and total score of HIV-related stigma. In this model, in the final step, perceived TGS and social support and resilient coping were found to be significant, but not the total score of HIV-related stigma.

Table 16. Hierarchical Multiple Linear Regression Analyses Predicting Depression Among TG From Different Types Of Stigma (n=300: includes 272 HIV-negative TG and 28 HIV-positive TG)

Predictor	Adjusted R ²	R ² change	β (standardized coefficient)
Step 1 Control variables \mathcal{K}	0.11	0.13*	
Step 2			
• Transgender identity stigma	0.15	0.04***	0.12**
• Total HIV-related stigma score †			0.004 (ns)
Step 3 Social support Resilient coping	0.34	0.18***	-0.10 (ns) -0.40***
Step 4 Interactions terms‡	0.33	0.005 (ns)	

† Total HIV-related stigma score for HIV-negative TG = Scores of vicarious and felt normative stigma

Total HIV-related stigma score for HIV-positive TG = Scores of vicarious, felt normative, enacted and internalised stigma

‡ Interaction terms were: Transgender identity stigma (TGS) x Resilient coping (RC); TGS x Social support (SoS); Total HIV-related stigma score (THS) x RC; THS x SoS; RC x SoS

* p < .05. ** p < .01. *** p < .0001.

Note. All changes in R² reported are adjusted for shrinkage. Entries are standardized betas in Step 3.

\mathcal{K} Among the control variables, the following were found to be significant: age ($\beta=0.151$, $p=0.005$), income (INR 3000-6000: $\beta=-0.199$, $p<0.0001$; > INR 6000 $\beta=-0.398$, $p<0.0001$)

Table 17. Hierarchical Multiple Linear Regression Analyses Predicting Depression Among TG (n=300: includes 272 HIV-negative TG and 28 HIV-positive TG) from Different Types Of Stigma

Predictor	Adjusted R ²	R ² change	β (standardized coefficient)
Step 1 Control variables \mathcal{K}	0.11	0.13***	
Step 2			
• Transgender identity stigma			0.16***
• Vicarious HIV-related stigma	0.17	0.06***	-0.20***
• Felt normative HIV-related stigma			0.13***
Step 3 Social support Resilient coping	0.37	0.19***	-0.10* -0.42***
Step 4 Interactions terms‡	0.37	0.01 (ns)	

‡ Interaction terms were: Transgender identity stigma (TGS) x Resilient coping (RC); TGS x Social support (SoS); Vicarious HIV-related stigma (VS) x RC; VS x SoS; Felt normative HIV-related stigma (FNS) x RC; FNS x SoS; RC x SoS

* p < .05. *** p < .0001.

Note. All changes in R² reported are adjusted for shrinkage. Entries are standardized betas in Step 3.

\mathcal{K} Among the control variables, the following were found to be significant: age ($\beta=0.161$, $p=0.002$), income (INR 3000-6000: $\beta=-0.134$, $p<0.0022$; > INR 6000 $\beta=-0.268$, $p<0.022$)

Table 18. Hierarchical Multiple Linear Regression Analyses Predicting Depression Among HIV-negative TG (n=272) from Different Types Of Stigma

Predictor	Adjusted R ²	Change in R ²	β (standardized coefficient)
Step 1 Control variables \mathcal{K}	0.08	0.10**	
Step 2			
• Transgender identity stigma			0.18**
• Vicarious HIV-related stigma	0.14	0.06***	-0.17**
• Felt normative HIV-related stigma			0.14**
Step 3	0.34	0.19***	
Social support			-0.05 (ns)
Resilient coping			-0.45***
Step 4 Interactions terms ϕ	0.39	0.02 (ns)	

ϕ Interaction terms were: Transgender identity stigma (TGS) x Resilient coping (RC); TGS x Social support (SoS); Vicarious HIV-related stigma (VS) x RC; VS x SoS; Felt normative HIV-related stigma (FNS) x RC; FNS x SoS; RC x SoS

** p < .01. *** p < .0001. Note. All changes in R² reported are adjusted for shrinkage. Entries are standardized betas in Step 3.

\mathcal{K} Among the control variables, the following were found to be significant: age ($\beta=0.126$, $p=0.027$), income (INR 3000-6000: $\beta=-0.140$, $p < 0.026$; > INR 6000 $\beta=-0.280$, $p < 0.026$)

Table 19. Hierarchical Multiple Linear Regression Analyses Predicting Depression Among HIV-negative (n=272) TG From Different Types Of Stigma (Perceived and enacted break-up for transgender identity stigma)

Predictor	Adjusted R ²	R ² change	β (standardized coefficient)
Step 1 Control variables \mathcal{K}	0.11	0.13***	
Step 2			
• Transgender identity stigma: Perceived		0.04**	0.06 (ns)
• Transgender identity stigma: Enacted	0.15		0.07 (ns)
• Total HIV-related stigma score \dagger			0.001 (ns)
Step 3	0.33	0.18***	
Social support			-0.15 (ns)
Resilient coping			-0.40***
Step 4 Interactions terms ϕ	0.33	0.01 (ns)	

\dagger Total HIV-related stigma score for HIV-negative MSM = Scores of vicarious and felt normative stigma

Total HIV-related stigma score for HIV-positive MSM = Scores of vicarious, felt normative, enacted and internalised stigma

Transgender identity stigma: Perceived (TGS - P) x Resilient coping (RC); Transgender identity stigma: Enacted (TGS - E) x Resilient coping (RC); TGS - P x Social support (SoS); TGS - E x Social support (SoS); Total HIV-related stigma score (THS) x RC; THS x SoS; RC x SoS

* p < .05. *** p < .0001. Note. All changes in R² reported are adjusted for shrinkage. Entries are standardized betas in Step 3.

\mathcal{K} Among the control variables, the following were found to be significant: age ($\beta=0.149$, $p=0.006$), income (INR 3000-6000: $\beta=-0.201$, $p < 0.0001$; > INR 6000 $\beta=-0.402$, $p < 0.0001$)

3d. Hierarchical logistic regression modelling of sexual risk behaviours

Logistic regression modelling of sexual risk behaviours of MSM with their male partners

Inconsistent condom use with male regular partners

In the final model (See Table 20), GNS/SxS and resilient coping were significant predictors of sexual risk. MSM with high levels of GNS/SxS and high levels of resilient coping were less likely to be inconsistent condom users. Alcohol use and social support were not significant predictors. Moderate depression, however, was a significant predictor in an earlier step. The final model predicted a significant amount of variance in sexual risk with male regular partners.

Table 20. Hierarchical logistic regression analysis of sexual and gender non-conformity stigma, HIV-related stigma, depression, alcohol use, resilient coping and social support predicting inconsistent condom use with male regular partners, controlling for demographic variables (N=300)						
	Step 1		Step 2		Step 3	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Stigma						
Gender non-conformity and sexual stigma (GNS \geq 33 & SxS \geq 24)	0.56 (0.32-0.98)	0.041	0.48 (0.27-0.86)	0.013	0.45 (0.24-0.83)	0.011
HIV-related stigma (\geq 36)	1.26 (0.71-2.21)	0.427	1.23 (0.69-2.18)	0.473	1.27 (0.69-2.31)	0.443
NRS=0.067						
Depression						
Moderate (7-9)			1.98 (0.99-3.97)	0.053	1.95 (0.92-4.15)	0.083
Severe (\geq 10)			1.18 (0.50-2.77)	0.705	0.89 (0.35-2.32)	0.825
Alcohol						
Infrequent drinkers			1.29 (0.72-2.31)	0.385	1.15 (0.62-2.12)	0.652
Frequent drinkers			1.32 (0.27-3.05)	0.518	1.23 (0.52-2.93)	0.642
NRS=0.092						
Resilient coping						
Moderate (11-12)					0.37 (0.12-1.19)	0.096
High (\geq 13)					0.15 (0.05-0.39)	<0.0001
Social Support						
Moderate (30-44)					2.73 (0.84-8.85)	0.094
High (\geq 45)					2.94 (0.86-10.03)	0.086
NRS=0.181						
Adjusted R ² (NRS) in the final model=0.181; Chi-square=8.39, p=0.397						

Inconsistent condom use with male casual partners

In the final model (See Table 21), neither GNS/SxS nor HIV-related stigma was a significant predictor of sexual risk. However, MSM who had moderate or severe depression and infrequent users of alcohol were less likely to be inconsistent condom users with male casual partners, opposite to what was hypothesized. People with moderate and high levels of social support were less likely to be inconsistent condom users. GNS/SxS and moderate depression, however, were significant predictors in the earlier steps. Resilient coping was a significant predictor: those with high levels of resilient coping were less likely to be inconsistent condom users. The final model predicted a significant amount of variance in sexual risk with casual partners.

Table 21. Hierarchical logistic regression analysis of sexual and gender non-conformity stigma, HIV-related stigma, depression, alcohol use, resilient coping and social support predicting inconsistent condom use with male casual partners, controlling for demographic variables (N=300)						
	Step 1		Step 2		Step 3	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Stigma						
Gender non-conformity and sexual stigma (GNS \geq 33 & SxS \geq 24)	0.68 (0.37-1.25)	0.211	0.68 (0.36-1.28)	0.231	0.56 (0.27-1.18)	0.129
HIV-related stigma (\geq 36)	1.16 (0.62-2.16)	0.647	1.10 (0.58-2.09)	0.769	0.82 (0.39-1.74)	0.611
NRS=0.186						
Depression						
Moderate (7-9)			0.90 (0.42-1.95)	0.795	0.28 (0.09-0.81)	0.018
Severe (\geq 10)			1.55 (0.65-3.69)	0.323	0.23 (0.07-0.81)	0.023
Alcohol						
Infrequent drinkers			0.37 (0.19-0.73)	0.004	0.23 (0.10-0.52)	<0.0001
Frequent drinkers			1.01 (0.43-2.37)	0.980	0.74 (0.27-1.99)	0.549
NRS=0.242						
Resilient coping						
Moderate (11-12)					0.34 (0.09-1.26)	0.105
High (\geq 13)					0.09 (0.03-0.26)	<0.0001
Social Support						
Moderate (30-44)					0.15 (0.04-0.58)	0.006
High (\geq 45)					0.12 (0.03-0.49)	0.004
NRS=0.465						
Adjusted R ² (NRS) in the final model=0.453; Chi-square=7.80, p=0.453						

Inconsistent condom use with male paying partners

In the final model (See Table 22), neither SxS/GNS nor HIV-related stigma was a significant predictor of sexual risk. However, MSM who had severe depression and infrequent users of alcohol were less likely to be inconsistent condom users with male paying partners, opposite to what was hypothesized. People with moderate social support were less likely to be inconsistent condom users with male paying partners. Resilient coping was a significant predictor. The final model predicted a significant amount of variance in sexual risk with paying partners.

Table 22. Hierarchical logistic regression analysis of sexual and gender non-conformity stigma, HIV-related stigma, depression, alcohol use, resilient coping and social support predicting inconsistent condom use with paying male partners, controlling for demographic variables (N=300)						
	Step 1		Step 2		Step 3	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Stigma						
Gender non-conformity and sexual stigma (GNS _≥ 33 & SxS _≥ 24)	0.92 (0.45-1.89)	0.819	1.15 (0.52-2.54)	0.732	0.91 (0.37-2.23)	0.835
HIV-related stigma (≥36)	1.79 (0.82-3.89)	0.142	1.82 (0.79-4.14)	0.155	1.85 (0.72-4.76)	0.203
NRS=0.158						
Depression						
Moderate (7-9)			1.11 (0.45-2.78)	0.818	0.57 (0.18-1.83)	0.346
Severe (≥ 10)			0.52 (0.17-1.58)	0.249	0.09 (0.02-0.45)	0.004
Alcohol						
Infrequent drinkers			0.19 (0.08-0.47)	<0.0001	0.11 (0.04-0.31)	<0.0001
Frequent drinkers			0.96 (0.32-2.87)	0.942	0.62 (0.18-2.18)	0.457
NRS=0.278						
Resilient coping						
Moderate (11-12)					0.19 (0.04-0.84)	0.028
High (≥ 13)					0.14 (0.04-0.48)	0.002
Social Support						
Moderate (30-44)					0.07 (0.01-0.41)	0.003
High (≥ 45)					0.21 (0.04-1.21)	0.081
NRS=0.457						
Adjusted R ² (NRS) in the final model=0.457; Chi-square=8.29, p=0.405						

Lack of condom use in last anal sex

In the final model (See Table 23), HIV-related stigma (but not SxS/GNS) and resilient coping were significant predictors of sexual risk: those with high levels of HIV-related stigma were more likely to engage in unprotected sex and those with high levels of resilient coping were less likely to engage in unprotected sex. Depression, alcohol use and social support were not significant predictors. Moderate depression, however, was a significant predictor in an earlier step. The final model predicted a significant amount of variance in sexual risk in last anal sex.

Table 23. Hierarchical logistic regression analysis of sexual and gender non-conformity stigma, HIV-related stigma, depression, alcohol use, resilient coping and social support predicting condom use in last anal sex, controlling for demographic variables (N=300)						
	Step 1		Step 2		Step 3	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Stigma						
Gender non-conformity and sexual stigma (GNS \geq 33 & SxS \geq 24)	1.06 (0.57-1.99)	0.847	0.81 (0.41-1.59)	0.540	0.76 (0.36-1.58)	0.461
HIV-related stigma (\geq 36)	3.38 (1.71-6.66)	<0.0001	3.03 (1.52-6.04)	0.002	3.12 (1.48-6.58)	0.003
NRS=0.216						
Depression						
Moderate (7-9)			2.27 (1.05-4.70)	0.036	2.23 (0.94-5.29)	0.069
Severe (\geq 10)			2.22 (0.94-5.22)	0.067	1.09 (0.36-3.27)	0.879
Alcohol						
Infrequent drinkers			1.55 (0.77-3.09)	0.215	1.36 (0.64-2.90)	0.425
Frequent drinkers			2.11 (0.87-5.08)	0.096	1.79 (0.68-4.72)	0.235
NRS=0.256						
Resilient coping						
Moderate (11-12)					0.21 (0.06-0.70)	0.011
High (\geq 13)					0.11 (0.04-0.25)	<0.0001
Social Support						
Moderate (30-44)					0.39 (0.13-1.18)	0.097
High (\geq 45)					1.67 (0.49-5.69)	0.412
NRS=0.402						
Adjusted R ² (NRS) in the final model=0.402; Chi-square=9.03, p=0.340						

Summary: In general, neither GNS/SxS nor HIV-related stigma was a significant predictor of sexual risk with male casual or paying partners. MSM with high levels of HIV-related stigma were more likely to engage in unprotected sex in last anal sex. People with moderate social support were less likely to be inconsistent condom users with male paying partners. Social support was not a significant predictor of sexual risk with regular or casual partners. MSM with high levels of resilient coping were less likely to be inconsistent condom users with casual and paying partners, and less likely to engage in unprotected anal sex. MSM with high levels of resilient coping were less likely to be inconsistent condom users with male regular, paying or casual partners, and less likely to engage in unprotected sex in last anal sex encounter.

Logistic regression modelling of sexual risk behaviours of hijras/TG with their male partners

Inconsistent condom use with male regular partners

In the final model (See Table 24), neither TG identity stigma nor HIV-related stigma was significant predictors of sexual risk. MSM who were frequent users of alcohol were more likely to be inconsistent condom users. TG identity stigma and depression, however, were significant predictors in the earlier steps, step 1 and 2, respectively. Social support was not a significant predictor. The final model predicted a significant amount of variance in sexual risk with regular partners. In the final model, among sociodemographic variables (details are not shown in Table 24), occupation and income group were significantly associated with sexual risk with male regular partners. Sex workers (OR=0.45, CI=0.21-0.96, p=.03) had lower odds of being in unprotected anal sex group compared with non-sex workers, and people who belonged to middle income group were at higher odds of being in unprotected anal sex group (OR=2.90, 95% CI= 1.19-7.06, p=0.019).

Table 24. Hierarchical logistic regression analysis of transgender identity stigma and HIV-related stigma, depression, alcohol use, resilient coping and social support predicting inconsistent condom use with male regular partners, controlling for demographic variables (N=300)

	Step 1		Step 2		Step 3	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Stigma						
TG identity stigma (≥ 40)	1.91 (1.10-3.33)	0.021	1.47 (0.82-2.65)	0.193	1.40 (0.77-2.55)	0.270
Vicarious stigma (≥ 11)	1.81 (1.02-3.22)	0.043	1.63 (0.89-2.97)	0.108	1.46 (0.79-2.70)	0.221
Felt normative stigma (≥ 23)	1.08 (0.60-1.95)	0.801	1.17 (0.63-2.17)	0.624	1.19 (0.63-2.23)	0.595
NRS=0.135						
Depression						
Moderate (7-9)			1.51 (0.67-3.41)	0.317	1.41 (0.62-3.22)	0.412
Severe (≥ 10)			2.03 (0.97-4.22)	0.059	1.43 (0.63-3.26)	0.390
Alcohol						
Infrequent drinkers			1.25 (0.61-2.55)	0.534	1.10 (0.53-2.29)	0.790
Frequent drinkers			2.98 (1.37-6.49)	0.006	2.57 (1.16-5.73)	0.021
NRS=0.197						
Resilient coping						
Moderate (11-12)					0.81 (0.26-2.51)	0.709
High (≥ 13)					0.51 (0.22-1.22)	0.130
Social Support						
Moderate (30-44)					0.65 (0.26-1.63)	0.360
High (≥ 45)					0.49 (0.18-1.36)	0.172
NRS=0.225						
Adjusted R ² (NRS) in the final model=0.225; Chi-square=11.18, p=.19						

Inconsistent condom use with male casual partners

In the final model (See Table 25), neither TG identity stigma nor HIV-related stigma was a significant predictor of sexual risk. However, TG people with severe depression and frequent use of alcohol were more likely to be inconsistent condom users. TG people with moderate or high levels of social support were less likely to be inconsistent condom users. TG identity stigma and moderate depression, however, were significant predictors in the earlier steps, step 1 and 2, respectively. Resilient coping was not a significant predictor. The final model predicted a significant amount of variance in sexual risk with regular partners.

In the final model, among sociodemographic variables (details are not shown in Table 25), education, sex work, income, and marital status being significantly associated with sexual risk with casual male partners. Odds of being in inconsistent condom use group were higher for people who were illiterate and who did not complete primary school (OR=2.47, 95% CI = 1.11-5.52), and people who were unmarried (OR=4.08, 95% CI = 1.29-12.92, $p=0.017$). Odds of being in inconsistent condom use group were lower for sex workers (OR=0.42, 95% CI =0.17-0.97, $p=0.042$) and those who were in higher income group (OR=0.26, 95% CI= 0.09-0.74, $p=0.011$).

Table 25. Hierarchical logistic regression analysis of transgender identity stigma and HIV-related stigma, depression, alcohol use, resilient coping and social support predicting inconsistent condom use with male casual partners, controlling for demographic variables (N=300)							
		Step 1		Step 2		Step 3	
		OR (95%CI)	p	OR (95% CI)	p	OR (95% CI)	p
Stigma							
TG identity stigma (≥ 40)	2.22 (1.13-3.91)	0.018	1.29 (0.64-2.62)	0.476	1.24 (0.56-2.71)	0.598	
HIV-related stigma (≥ 36)	1.41 (0.77-2.58)	0.264	1.07 (0.55-2.09)	0.837	0.86 (0.41-1.80)	0.691	
NRS=0.174							
Depression							
Moderate (7-9)			2.83 (1.16-6.94)	0.023	2.44 (0.91-6.55)	0.076	
Severe (≥ 10)			4.79 (2.15-10.72)	<0.0001	3.12 (1.15-8.44)	0.025	
Alcohol							
Infrequent drinkers			0.86 (0.36-2.09)	0.748	0.45 (0.16-1.23)	0.118	
Frequent drinkers			5.53 (2.19-13.96)	<0.0001	3.70 (1.32-10.34)	0.013	
NRS=0.363							
Resilient coping							
Moderate (11-12)					1.43 (0.41-4.99)	0.579	
High (≥ 13)					0.58 (0.23-1.46)	0.248	
Social Support							
Moderate (30-44)					0.38 (0.15-0.98)	0.045	
High (≥ 45)					0.04 (0.01-0.18)	<0.0001	
NRS=0.492							
Adjusted R ² (NRS) in the final model=0.492; Chi-square=1.69, $p=.98$							

Inconsistent condom use with male paying partners

In the final model (See Table 26), neither TG identity stigma nor HIV-related stigma was a significant predictor of sexual risk. However, MSM who had severe depression and frequent users of alcohol were more likely to be inconsistent condom users with male paying partners. TG people with moderate or high levels of social support were less likely to be inconsistent condom users. TG identity stigma and HIV-related stigma, and moderate depression, however, were significant predictors in the earlier steps, step 1 and 2, respectively. Resilient coping was not a significant predictor. The final model predicted a significant amount of variance in sexual risk with paying partners.

In the final model, among sociodemographic variables (details are not shown in Table 26), odds of being in inconsistent condom use group were higher for people who were illiterate and who did not complete primary school (OR=3.69, 95% CI = 1.69-8.07).

Table 26. Hierarchical logistic regression analysis of transgender identity stigma and HIV-related stigma, depression, alcohol use, resilient coping and social support predicting inconsistent condom use with male paying partners, controlling for demographic variables (N=300)							
		Step 1		Step 2		Step 3	
		OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Stigma							
TG identity stigma (≥ 40)		2.81 (1.50-5.24)	0.001	1.57 (0.77-3.20)	0.211	1.49 (0.71-3.15)	0.291
HIV-related stigma (≥ 36)		1.84 (1.01-3.38)	0.049	1.38 (0.70-2.72)	0.349	1.21 (0.59-2.45)	0.601
NRS=0.196 (Adj. R² change = 0.06)							
Depression							
Moderate (7-9)				2.86 (1.23-6.68)	0.015	2.36 (0.97-5.75)	0.059
Severe (≥ 10)				6.19 (2.64-14.51)	<0.0001	4.72 (1.82-12.21)	0.001
Alcohol							
Infrequent drinkers				1.56 (0.61-3.95)	0.353	1.16 (0.43-3.10)	0.771
Frequent drinkers				7.66 (2.85-20.63)	<0.0001	6.32 (2.22-17.96)	0.001
NRS=0.383 (Adj. R² change = 0.137)							
Resilient coping							
Moderate (11-12)						1.32 (0.37-4.65)	0.671
High (≥ 13)						0.89 (0.37-2.12)	0.791
Social Support							
Moderate (30-44)						0.34 (0.14-0.85)	0.021
High (≥ 45)						0.18 (0.05-0.60)	0.005
NRS=0.728 (Adj. R² change = 0.034)							
Adjusted R ² (NRS) in the final model =0.428; Chi-square=12.51, p=.13							

Lack of condom use in last anal sex

In the final model (See Table 27), neither TG identity stigma nor HIV-related stigma was a significant predictor of sexual risk. However, TG who had severe depression and frequent users of alcohol were more likely to engage in unprotected sex during the last anal sex. TG people with high levels of social support were less likely to engage in unprotected sex in the last anal sex. TG identity stigma and HIV-related stigma, and moderate depression, however, were significant predictors in the earlier steps, step 1 and 2, respectively. Resilient coping was not a significant predictor. The final model predicted a significant amount of variance in sexual risk in last anal sex.

Table 27. Hierarchical logistic regression analysis of transgender identity stigma and HIV-related stigma, depression, alcohol use, resilient coping and social support predicting lack of condom use in last anal sex, controlling for demographic variables (N=300)						
	Step 1		Step 2		Step 3	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Stigma						
TG identity stigma (≥ 40)	3.06 (1.69-5.53)	<0.0001	1.96 (1.03-3.73)	0.041	1.73 (0.89-3.36)	0.103
HIV-related stigma (≥ 36)	2.00 (1.12-3.57)	0.019	1.65 (0.89-3.07)	0.115	1.52 (0.80-2.88)	0.199
NRS=0.212						
Depression						
Moderate (7-9)			1.29 (0.58-2.86)	0.525	1.06 (0.46-2.43)	0.899
Severe (≥ 10)			3.96 (1.85-8.49)	<0.0001	2.97 (1.25-7.02)	0.013
Alcohol						
Infrequent drinkers			0.85 (0.36-2.03)	0.723	0.73 (0.30-1.77)	0.488
Frequent drinkers			4.93 (2.16-11.23)	<0.0001	4.36 (1.84-10.29)	0.001
NRS=0.352						
Resilient coping						
Moderate (11-12)					1.09 (0.38-3.12)	0.876
High (≥ 13)					0.73 (0.32-1.67)	0.451
Social Support						
Moderate (30-44)					0.51 (0.22-1.19)	0.123
High (≥ 45)					0.24 (0.07-0.77)	0.017
NRS=0.384						
Adjusted R ² (NRS) in the final model – 0.384; Chi-square – 12.07, p=0.148						

Summary: In general, neither transgender identity stigma nor HIV-related stigma was a significant predictor of sexual risk with any type of male partners (regular, casual and paying) or unprotected sex in last anal sex. TG people with severe depression and frequent use of alcohol were more likely to be inconsistent condom users with male casual and paying partners. TG people with moderate or high levels of social support were less likely to be inconsistent condom users with casual and paying partners, and less likely to engage in unprotected sex in last anal sex. Social support was not a significant predictor of sexual risk with male regular partners. Resilient coping was not a significant predictor of sexual risk with any of the male partner types.

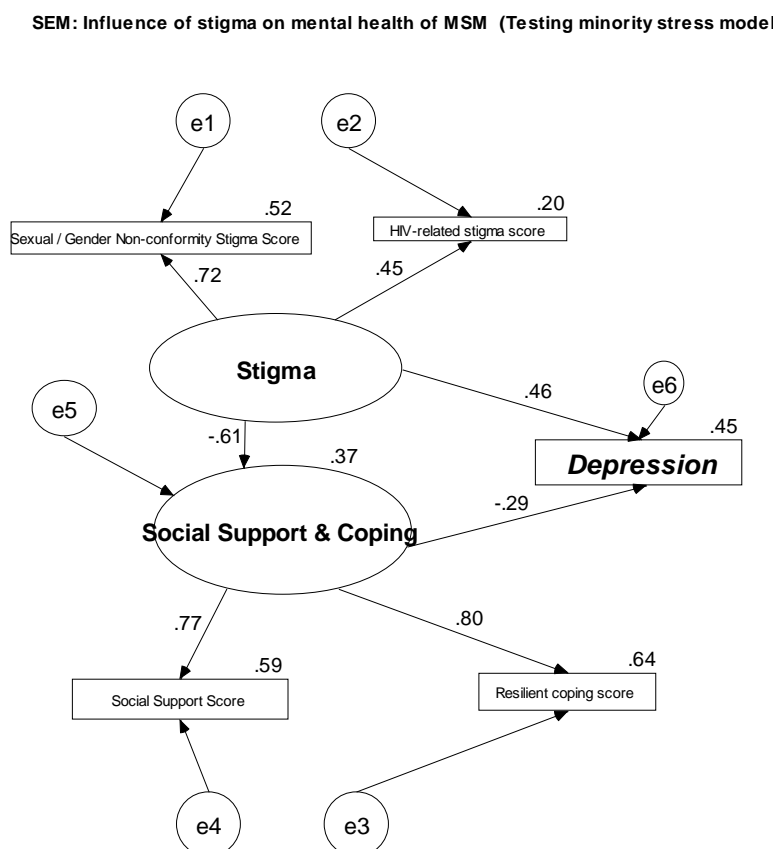
3e. Structural Equation Modelling (SEM) of the influence of stigma on depression

Using the adapted minority stress model, SEM models were tested among MSM and TG data separately. The best fit solutions are shown for MSM (Diagram 4) and hijras/TG (Diagram 5). Overall, the model fits confirmed that the empirical data provided evidence that adapted minority stress models for MSM and hijras/TG cannot be rejected.

SEM for MSM

The best fit solution is shown as diagram 4. The goodness of fit for the full model showed that it fit the data well (Chi-square=1.853, Degrees of freedom=3, $p=.603$; RMSEA=0.000; CFI=1.00; TLI=1.01). This implies that the hypothesised adapted minority stress model of the associations among the constructs (gender non-conformity and sexual stigma, HIV-related stigma, social support, resilient coping, and depression) is tenable. In the analyses reported here, we did not perform further modifications on the model to achieve a better fit. The path coefficients (which can be interpreted as standardized regression coefficients) proximal to the unidirectional arrows in diagram 2 are the standardized estimates of one factor score on the other. For example, an increase in one standard deviation in stigma can lead to corresponding increase of 0.46 standard deviation units of depression. All estimated path coefficients were significant ($p<.01$).

Diagram 4. SEM: Influence of stigma on mental health of MSM (n=300)

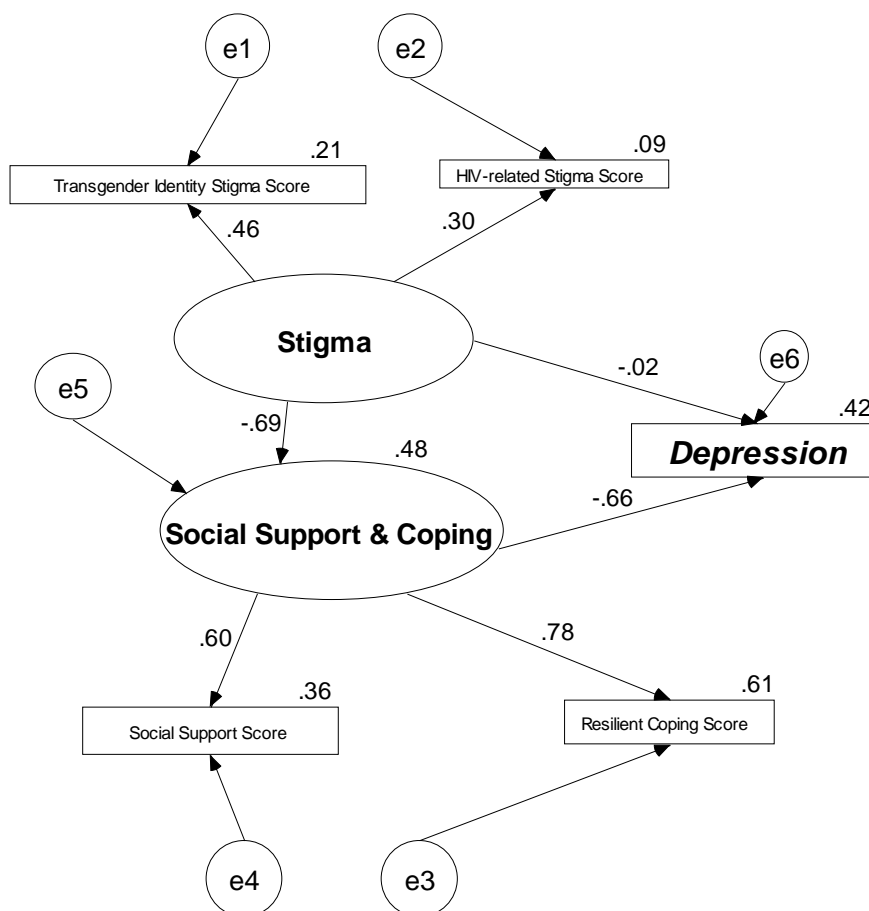


SEM for Hijras/TG

The best fit solution is shown as diagram 5. The goodness of fit for the full model showed that it fit the data well (Chi-square=6.187, Degrees of freedom=3, $p = .103$; RMSEA=0.06; CFI =.984; TLI=.984). This implies that the hypothesised adapted minority stress model of the associations among the constructs (transgender identity stigma, HIV-related stigma, social support, resilient coping, and depression) is tenable. In the analyses reported here, we did not perform further modifications on the model to achieve a better fit. The path coefficients (which can be interpreted as standardized regression coefficients) proximal to the unidirectional arrows in diagram 3 are the standardized estimates of one factor score on the other. For example, an increase in one standard deviation in social support and resilient coping factor can lead to corresponding decrease of 0.66 standard deviation units of depression. The path coefficients between stigma and social support & coping, and between social support & coping and depression were significant ($p < .05$). The path coefficient between stigma construct and depression, however, was not statistically significant, and hence the negative and small path coefficient (-.02) does not mean that an increase in stigma leads to decrease in depression.

Diagram 5. SEM: Influence of stigma on mental health of hijras/TG people (n=300)

SEM: Influence of stigma on mental health of Transgender people (Testing minority stress model)



3f. Qualitative Findings

The focus in the qualitative data analysis was to describe the possible mechanisms by which sexual minority stigma influences mental health and sexual risk. For both MSM and hijras/TG, the possible mechanisms identified from the qualitative in-depth interviews are summarized in Diagram 6. The mechanisms for both ‘confirming’ cases and ‘disconfirming cases’ are explained below.

Realisation of sexuality and transgender identity, Self-acceptance and Self-stigma

Participants realized their same-sex sexual orientation or their transgender identity as early as 10 years (or even before that) or as late as 27 years. While some participants reported having been comfortable with their sexuality or gender identity from the beginning, some other participants took some time to understand and accept themselves. In between realization and self-acceptance some participants felt guilty and bad about themselves (self-stigma) because of internalization of the society’s negative attitude towards same-sex attracted or transgender people (internalized homophobia or transphobia).

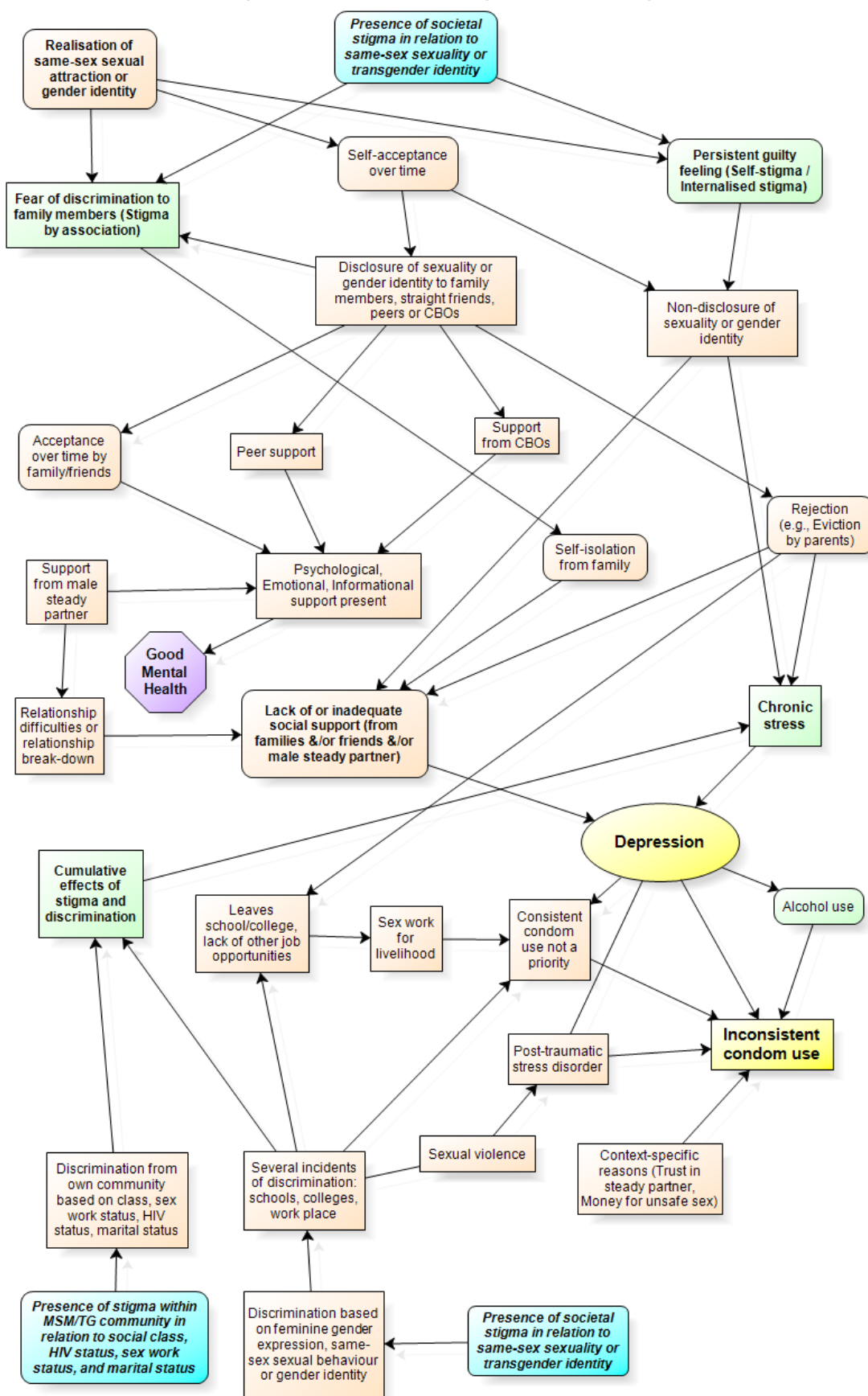
Effects of sexual minority stigma on mental health and sexual risk

While masculine-looking MSM did not report overt discrimination (as their same-sex behaviour could not be identified by looking at them), often feminine MSM (such as kothis) and hijras/transgender people reported facing discrimination both during their childhood and even now – as their feminine gender expression was equated with same-sex sexual attraction. **Gender non-conformity stigma** (boys behaving in ‘feminine’ manner) and **transgender identity stigma** thus play a key role in active discrimination, and consequently lead to chronic stress among same-sex attracted and transgender youth/adults that ultimately affect their mental health. In general, **sexual stigma** – the stigma of being a same-sex attracted person – among masculine MSM, did not lead to active discrimination if the individual has not disclosed his sexuality or same-sex sexual behaviour. Discrimination faced by school and college co-students, combined with non-acceptance from one’s own family, led many hijras/TG and some feminine MSM to leave their studies. With lack of support from their families, and lack of education, and in absence of other job opportunities, a significant proportion entered into part-time or full-time sex work for subsistence. **Sex work stigma** will be a separate construct that we did not measure in the quantitative component. However, given the perception that transgender people are often seen as or suspected to be sex workers, stigma/discrimination faced by hijras/TG people is unlikely to be clearly differentiated as discrimination due to transgender identity stigma or sex work stigma. Similarly, there is likely to be an overlap between **HIV-related stigma**, transgender identity stigma and sex work stigma, which points out the need to distinguish these three constructs (and consider the overlap between them) in the future quantitative and qualitative studies.

Sexual violence can be seen as another form of discrimination that has serious consequences on mental health – undermining one’s self-esteem and leading to post-traumatic stress disorder (PTSD) and depression. Hijras as well as feminine MSM face sexual violence from police, ruffians, clients of sex work and even from casual male partners. In addition to mental health consequences, sexual violence has direct and indirect risk of acquiring (or transmitting) HIV/STIs: direct effect due to the possibility of infection during the sexual violent episode itself, and in-direct effect due to depression, helplessness and fatalism resulting in inconsistent condom use in subsequent consensual sex encounters.

The effect of depression on sexual risk (inconsistent condom use) can be directly due to fatalism or apathy towards one’s health, or indirectly through use of alcohol as a maladaptive coping mechanism. Alcohol use before sexual encounters has been reported as a reason for lack of condom use during sex.

Diagram 6. Mechanisms by which stigma influences mental health and sexual risk (Inferences from the qualitative data)



Social support and resilience, and their influence on mental health and sexual risk

The decision to disclose one's same-sex sexuality or transgender identity to family members seems to depend on the anticipated reactions from the family members. After considering the pros and cons of disclosure of same-sex sexuality or TG identity, some persons decide to disclose and others decide not to. After disclosure (either voluntarily or by some other person), the family members' may or may not accept their child/sibling immediately. Some parents may continue to support education, but cease to offer any psychological or emotional support; some other parents may even evict their child (especially transgender youth).

Some transgender youth run away from their family not wanting to tolerate physical or emotional violence, and some other persons run away to avoid bringing shame to their family members (***'stigma by association'*** or ***'courtesy stigma'***). This aspect of trying to avoid shame to family seems important to the extent that the participants may self-isolate themselves from their families not to bring shame or problems to their family members (for example, transgender people may feel that their presence in the home may prevent marriage prospects of their siblings). Thus, 'stigma by association' construct needs to be further explored in the future studies, as in the current study, the quantitative component did not explicitly focus on this aspect.

If there is family acceptance, then MSM/TG get the usual support from their family in terms of financial or psychological support. Similarly, acceptance from straight friends, relatives, and work place colleagues determine whether MSM/TG gets social support from these persons. In absence of social support from families, relatives and straight friends, MSM/TG rely almost entirely on the social support from their peers and sometimes from their male steady partners or the community-based organizations working for MSM/TG. As certain subgroups of MSM, for example, panthi or double-decker-identified MSM often do not mingle with their 'peers', they lack the social support from their peers as well as from their family members (if they had disclosed their sexuality to them resulting in non-acceptance.)

Discrimination faced by MSM/TG within their own communities

Some MSM and hijras/TG people face discrimination within their own communities due to differences in socioeconomic status, engagement in sex work, HIV status and marital status. For example, married kothi-identified MSM are often discriminated (overtly or covertly) within kothi communities. Similarly, a kothi in sex work may face discrimination from kothis who do not engage in sex work. Although some HIV-positive persons are accepted within the MSM/TG communities, often they face discrimination as they are seen as introducing HIV within their communities by having sex with men who could also be sexual partners of other MSM/TG. Thus, the discrimination based on economic status, HIV status, and engagement in sex work seems to be interconnected.

When there is absence of social support both from the biological families as well as from their own communities, MSM/TG becomes highly vulnerable and there is a high chance of becoming depressed. Not all people seem to have adequate resilience to maintain their mental health as both resilience and social support seem to be necessary to decrease the influence of stigma on mental health.

Disconfirming cases

Some participants having faced several incidents of discrimination had apparently good mental health and no sexual risk behaviours. These 'disconfirming cases' could be explained by the adequacy of social support and/or resilience to decrease the impact of stigma on mental health and risk. Social support can be from the families, peers, male steady partner or CBOs. So, these 'disconfirming cases' too are actually consistent with the adapted minority stress model.

Some other participants did not seem to face discrimination at all (for example, masculine-looking panthis), but their mental health was affected. These ‘disconfirming cases’ were explained by the available empirical qualitative data. For example, in the case of a panthi-identified MSM, while he did not face any discrimination in the form of physical or verbal abuse, his desire to co-habit with a hijra partner was met with resistance from his family members. He too did not want to bring shame to his family members (stigma by association or courtesy stigma) by cohabiting with a hijra partner. This, in turn, resulted in depression and anxiety. This shows that other factors such as different type of stigma (here, ‘stigma by association’) also influence mental health. Thus, this example provides a possible way to expand the proposed adapted minority stress model in which currently only the sexual minority stigma and HIV-related stigma are given prominence.

Table 28. Illustrative quotes from the qualitative in-depth interviews	
Self-stigma	<p>“That’s why God has given me this kind of identity. Why he didn’t make me normal man. He had made me incomplete person, I am neither man nor woman, I am somebody in between, so when I realise this I feel sad.” (Kothi)</p> <p>“Yes, after my [hijra] identity was revealed to them they [family] started ignoring me. I feel that, if they had not ignored me that time, I wouldn’t be here [hijra community] today. I was in need of support which they didn’t give me. I couldn’t live like normal man. I was feeling bad when I was looking at other people who were normal I was feeling bad, why I am like this. (Hijra)</p>
Gender non-conformity stigma / Sexual stigma and discrimination	<p>“If we are standing on bus stand they [police] drive us away from there. They warn us not to stand near bus stand. They u necessarily harass us. If I am standing near the bus stand he [police] will threaten me saying that I will take you to police station, and he will have sex with me.” (Kothi)</p> <p>“Yes, once I faced problem, I was in a public toilet, I had been there once or twice, so one man came inside and he took me out. That time I was hardly 21 years old and he was police, so he dragged me out of there and extracted all my money. I had around 3000 Rupees that time. He cheated me. That time I was frightened. He asked me, since how long you are into this kind of habit.” (MSM)</p>
Transgender identity stigma and discrimination	<p>“He [brother] used to tell me: ‘You are spoiling our family name. You are man - so live like a man...You are making us [family] feel embarrassed. You can’t be girl. You will only clap and your image will be spoiled. We will feel so embarrassed that we can’t live in this society so it is better you live outside’. Therefore I left home.” (Kothi)</p> <p>“Others [general public] turn away their face from us. They don’t want to sit near me [in bus]. They think I am a different kind. But I know if anyone sits near me and speak nicely then I respect them as a human being.. They think we are bad people. They keep away from us.” (Hijra)</p>
Stigma by association (Courtesy stigma) to the family	<p>“Once I went with to a family’s home taking the marriage proposal for my sister-in-law. They refused the proposal stating that they don’t want to have any relations with the family that has a ‘dancing and singing’ background. [They said] ‘You dance and sing and we don’t approve of it’. So I said that I dance and sing my sister in law doesn’t sing and dance she is from the other house, then they said that you will have to change yourself and this is not approved of the society we live in.” (Kothi who is a dancer)</p> <p>“I was asked by them [family]: ‘Why were you being like this? ...It is shameful for us... You [hijras] are like a rowdies... many are frightened by [hijras]... in such circumstances why are you behaving like this?’... So I told them ‘Okay, you live like that and I better I go out of the home... and I left my home.’ (Hijra)</p>

Stigma within the MSM community of being married to a woman	<p>“I think this [marriage to a woman] may be more relevant for panthis and DDs [double-deckers]. However, even among kothis, some would not want to meet their kothi friends after marriage to avoid stigma of being married or they do not want to be blackmailed by their MSM friends that they are MSM but they are now married to a woman. ‘Married MSM stigma’...” (Dupli / Double-decker)</p>
Social support	<p>“That time he had beaten me very badly. They isolated me for 15 to 20 days, nobody was talking to me. My dad told me you have to come back to normal life. He told me, you tell me what is wrong with me. My elder brother ... also had beaten me very badly. Only my mother and my sister supported me and took care of me. My mummy said ‘He is my child. Now he has become like that - What to do? There are many such people in world’. So mummy had supported me. My father said ‘Okay, It is fine, but I won’t talk to him till I am alive’. Since that day as of today he doesn’t look at my face and doesn’t talk to me.” (Kothi)</p> <p>“My friend [male lover] left me after staying with me for 17 years, and I am living with his memories only. I don't have any right to love anyone?...Yes, whenever I am alone I feel that. When I am busy I don't think all these things but whenever I am alone these thoughts are coming to my mind. My friend had left all memories with me and he left. I keep weeping in his memories. I feel that I should get the right to love somebody - which is a human being's need, but my life is such that I can't even love anyone. Those who love me also leave me.” (Hijra)</p> <p>“My friend [straight] knows me completely and I share each and everything to him. He helps me in all the possible ways. Once I got [sexually] attracted towards him too. But I didn’t want to see him as my boyfriend. I wanted him to be a good and genuine friend of mine. Once we start to have sexual relationship then I won’t be able to share everything with him. I have to think once or twice before I share anything with him. He was also not interested having sexual relationship with me. But we are very close friends till now for the past 5 to 6 years.” (Transgender)</p>
Impact on mental health & sexual risk	<p>“Whenever I used to face any kind of discrimination, and I used to get tensed. And this drink [alcohol] used to relieve me from tension. It is something like, when I share my tension with somebody – I feel free. And I can sleep with free mind.” (Panthi)</p> <p>“[MSM] face a lot of discrimination. Mentally it is a harrowing experience for them and they are made to feel it during each day. I can recall a particularly disturbing incident when a father of a son, who was reported against by his neighbours that his son was effeminate, severely beat up his son and made him to stay out in the freezing night with a flimsy ganjee on. How would be telling him using a condom to this guy. He would rather – as he said to me crying – prefer ending his life than live and of all things use a condom keep himself safe from HIV. The communication to condom usage needs to follow several steps before the person in question start practising the same. We have to understand that this people face a lot of discrimination. And before educating them on safe sex and condom usage it is important that we counsel them on more immediate things that plague them. Like for example being ostracised from the community.” (Gay)</p>

4. CONCLUSIONS

In general, inferences from quantitative and qualitative analyses offer empirical support for the minority stress model that stigma targeting sexual minorities is associated with depression and sexual risk, and social support and resilient coping may act as a possible buffer against depression and sexual risk.

Influence of stigma on depression: consistent with adapted Meyer's minority stress model

Among MSM, gender non-conformity and sexual stigma and HIV-related stigma were found to be significant predictors of depression. Resilient coping and social support too were found to be significant. Similarly, among hijras/TG, transgender identity stigma was a significant predictor of depression, so were the individual scores of vicarious and felt normative HIV-related stigma subscales. Resilient coping and social support too were significant predictors that acted as a buffer against the impact of stigma on mental health. Model fit indices of structural equation models (SEM) for MSM and hijra/TG showed high fit for the proposed adapted minority stress model. Thus, quantitative findings from both hierarchical multiple linear regression analyses and structural equation modelling provided empirical evidence for the tenability of the adapted Meyer's minority stress model (influence of stigma on the mental health) among Indian MSM and hijras/TG people.

Influence of stigma on sexual risk: mixed results

Contrary to what was hypothesized, sexual minority stigma (gender non-conformity stigma/sexual stigma or transgender identity stigma) was not found to be significant predictor of sexual risk among MSM and hijras/TG. However, among MSM, HIV-related stigma was a significant predictor for sexual risk in relation to last anal sex (MSM with high levels of HIV-related stigma were more likely to not use condom in last anal sex). The effect of alcohol use on sexual risk was observed primarily among hijras (frequent alcohol users were more likely to be inconsistent condom users with male casual and paying partners). Among both MSM and hijras, social support acted as a buffer against sexual risk with male paying partners but not with male regular partners. Among hijras, resilient coping was not a significant predictor of sexual risk with any type of male partners, but among MSM, those with high levels of resilient coping were less likely to be inconsistent condom users with male regular, paying or casual partners, and less likely to use condom in last anal sex.

Complementarity of qualitative findings

Qualitative findings, with selection of confirming and disconfirming cases from the survey sample, provided details of the various mechanisms by which sexual minority stigma influences mental health and sexual risk, as well as provided additional details that were not tested in the quantitative component. For example, qualitative findings illustrated the importance of 'stigma by association' (courtesy stigma), stigma faced by family members of MSM/TG, on the mental health of both the sexual minorities as well as their family members.

Another construct of importance that emerged in the qualitative data analyses was 'sex work stigma', which was not included in the quantitatively tested adapted minority stress model. It is possible that 'sex work stigma', stigma of being a sex worker, faced from both the general public as well as within one's own communities (MSM or TG), may have impact on the mental health.

None of the stigma scales that we used in this study explicitly had statements on discrimination faced by the participants within their own (MSM/TG) communities. Qualitative component, however, revealed that participants faced discrimination from their own (MSM or TG) communities based on one's socioeconomic status, educational status, HIV status, marital status and engagement in sex work. For MSM/TG who rely almost entirely on the social support from their own communities, the fear of discrimination based on HIV status or

marital status mean non-disclosure of HIV or marital status, or self-isolation from their own communities that may further affect mental health.

Further research

The importance of the constructs – stigma by association, sex work stigma and stigma/discrimination within one's own communities based on one's marital status, HIV status, economic status and engagement in sex work – need to be tested through quantitative methods in future studies. One possibility is to include these constructs in the adapted minority stress model tested by us.

Among MSM, we could not find significant associations between alcohol use and sexual risk. Among both MSM and hijras, future studies can use standardized instruments to capture comprehensive information on alcohol consumption (frequency, quantity, ethanol content, intoxication level, and bingeing) and capture sexual event-specific information on alcohol and condom use.

Findings-based recommendations

1. Educate and sensitize the general public and other stakeholders on sexual minority issues to decrease societal stigma and promote acceptance

Societal stigma against same-sex sexuality and transgenderism seems to contribute to the self-stigma among sexual minorities as well as serve as a justification for perpetrators to discriminate sexual minorities. Hence, it is critical to promote understanding of same-sex sexuality and transgenderism among various stakeholders. Educational and sensitization programmes thus need to be organised at schools, colleges, work places, health care settings, and also through mass media to reach the general public. Health care providers, especially mental health specialists, may require training on how to screen for and address mental health issues of MSM and transgender people.

2. Consider providing counselling on mental health issues and mental health referral services to MSM and hijras/TG through HIV prevention interventions of the government and other partner agencies

National AIDS Control Organisation (NACO) supports several targeted Interventions for HIV prevention in populations of MSM and hijras and other MtF transgender people. These interventions, thus, provide an opportunity to screen them for mental health issues. The brief screening within HIV interventions may include asking MSM/TG people about current social support, coping mechanisms, alcohol use, and symptoms of mental distress. Then, those who require counselling can be referred to trained community or professional counsellors within the intervention centres, or at least referred the needy to specialist mental health services. Given the established connection between mental health and sexual risk, screening and referral services within targeted HIV interventions will also ultimately help in decreasing the sexual risk behaviours among MSM and TG people.

3. Take steps to promote self-acceptance by decreasing self-stigma among MSM/TG

Self-acceptance of sexuality and gender identity, or HIV-positive status, is critical for good mental health. Self-stigma related to one's sexuality or gender identity lowers one's self-esteem and can lead to depression. Adolescents, youth and adults who are struggling to come to terms with their sexuality or gender identity (or questioning their sexuality) need to be provided appropriate, comprehensive, and nonjudgmental counselling and information so that they can understand about themselves. Non-governmental organisation working with youth – especially community organisations working with sexual minorities can initially offer these services, which can later be made available in government health settings as well.

4. Address the differential use of condoms with different types of male partners in the HIV interventions

MSM/TG typically reported inconsistent or lack of condom use with male regular partners when compared with male casual or paying partners. While the HIV programmes seemed to have created awareness among MSM/TG to use condoms with casual and paying partners, as trust and intimacy are some of the reasons behind non-use of condoms with male regular partners, both MSM/TG and their regular partners may be at risk for STIs/HIV. Interventions need to explicitly address this issue, and promote condom use with all types of partners. Counsellors need to explore both partner-specific and context-specific reasons for inconsistent condom use, and accordingly tailor sexual risk reduction counselling for MSM/TG.

5. Strengthen social support networks of MSM and hijras/TG people by strengthening their communities as well as promoting acceptance among families and friends

Social support has been shown to act as a buffer against depression and sexual risk. Within their own MSM/TG communities, however, MSM/TG are being discriminated based on one's HIV status, engagement in sex work and marital status. Community-based organisations can take proactive steps in addressing these issues within the MSM/TG communities, and promote solidarity. Similarly, providing information and counselling to family members and friends of MSM/TG may help them in better understanding their same-sex attracted or transgender offspring or friend, ensuring high chances of continued social support from the biological families and friends.

6. Take steps to decrease discrimination faced by sexual minorities in various settings

Anti-discrimination policies in schools and colleges are needed to prevent discrimination of students on the basis of their presumed or actual same-sex sexual orientation/identity and gender identity, and to deter perpetrators. Similarly, anti-discrimination policy against sexual minorities can be introduced in health care settings and workplaces.

7. Formulate a national health policy for sexual minorities that also addresses mental health needs

India's 12th Five-Year Plan articulates that health and livelihoods of 'Lesbian, Gay, Bisexual and Transgender (LGBT) people' must be addressed. Thus, there is a need for a specific national policy to respond to the health (especially mental health) needs of sexual minorities. In the mean time, the existing or the forthcoming national health policy needs to specifically articulate how the government will address the mental health needs of sexual minorities.

5. REFERENCES

- Beck, A. T., Guth, D., Steer, R. A., & Ball, R. (1997). Screening for major depression disorders in medical inpatients with the Beck Depression Inventory for Primary Care. *Behaviour Research and Therapy*, *35*(8), 785-791.
- Bharat, S. (2011). A systematic review of HIV/AIDS-related stigma and discrimination in India: current understanding and future needs. *SAHARA J*, *8*(3), 138-149. doi: 10.1080/17290376.2011.9724996
- Chakrapani, V., Babu, P., & Ebenezer, T. (2004). Hijras in sex work face discrimination in the Indian health-care system. *Research for Sex Work*, *7*, 12-14.
- Chakrapani, V., Boyce, P., Newman, P. A., & Row Kavi, A. (2013). Contextual influences on condom use among men who have sex with men in India: subjectivities, practices and risks. *Cult Health Sex*. doi: 10.1080/13691058.2013.798032
- Chakrapani, V., Newman, P. A., Shunmugam, M., & Dubrow, R. (2011). Barriers to free antiretroviral treatment access among kothi-identified men who have sex with men and aravanis (transgender women) in Chennai, India. *AIDS Care*, *23*(12), 1687-1694. doi: 10.1080/09540121.2011.582076
- Chakrapani, V., Newman, P. A., Shunmugam, M., McLuckie, A., & Melwin, F. (2007). Structural violence against Kothi-identified men who have sex with men in Chennai, India: a qualitative investigation. *AIDS Educ Prev*, *19*(4), 346-364. doi: 10.1521/aeap.2007.19.4.346
- Díaz, R. M., Ayala, G., Bein, E., Henne, J., & Marin, B. V. (2001). The impact of homophobia, poverty, and racism on the mental health of gay and bisexual Latino men: Findings from 3 US cities. *Am J Public Health*, *91*(6), 927-932.
- Ekstrand, M. L., Stall, R. D., Paul, J. P., Osmond, D. H., & Coates, T. J. (1999). Gay men report high rates of unprotected anal sex with partners of unknown or discordant HIV status. *AIDS*, *13*(12), 1525-1533.
- Golden, J., Conroy, R. M., & O'Dwyer, A. M. (2007). Reliability and validity of the Hospital Anxiety and Depression Scale and the Beck Depression Inventory (Full and FastScreen scales) in detecting depression in persons with hepatitis C. *J Affect Disord*, *100*(1-3), 265-269.
- Herek, G. M. (2007). Confronting sexual stigma and prejudice: Theory and practice. *Journal of Social Issues*, *63*(4), 905-925.
- Herek, G. M., & Capitanio, J. P. (1999). AIDS stigma and sexual prejudice. *American Behavioral Scientist*(7), 1130-1147.
- Logie, C. H., Newman, P. A., Chakrapani, V., & Shunmugam, M. (2012). Adapting the minority stress model: Associations between gender non-conformity stigma, HIV-related stigma and depression among men who have sex with men in South India. *Soc Sci Med*, *74*(8), 1261-1268. doi: DOI 10.1016/j.socscimed.2012.01.008
- Logie, C., & Gadalla, T. M. (2009). Meta-analysis of health and demographic correlates of stigma towards people living with HIV. *AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV*, *21*(6), 742-753.
- Meyer, I. H. (1995). Minority stress and mental health in gay men. *J Health Soc Behav*, *36*(1), 38-56.
- Meyer, I. H. (2003). Prejudice, Social Stress, and Mental Health in Lesbian, Gay, and Bisexual Populations: Conceptual Issues and Research Evidence. *Psychol Bull*, *129*(5), 674-697.
- Mimiaga, M. J., Biello, K. B., Sivasubramanian, M., Mayer, K. H., Anand, V. R., & Safren, S. A. (2013). Psychosocial risk factors for HIV sexual risk among Indian men who have sex with men. *AIDS Care*. doi: 10.1080/09540121.2012.749340
- Neilands, T. B., Steward, W. T., & Choi, K. H. (2008). Assessment of stigma towards homosexuality in China: a study of men who have sex with men. *Arch Sex Behav*, *37*(5), 838-844. doi: 10.1007/s10508-007-9305-x
- Newman, P. A., Chakrapani, V., Cook, C., Shunmugam, M., & Kakinami, L. (2008). Correlates of paid sex among men who have sex with men in Chennai, India. *Sex Transm Infect*, *84*(6), 434-438. doi: 10.1136/sti.2008.031484
- PUCL-K. (2003). *Human rights violations against the transgender community: A study of kothi and hijra sex workers in Bangalore, India*. Retrieved from <http://www.pucl.org/Topics/Gender/2003/sexual-minorities.pdf>
- Safren, S. A., Thomas, B. E., Mimiaga, M. J., Chandrasekaran, V., Menon, S., Swaminathan, S., & Mayer, K. H. (2009). Depressive symptoms and human immunodeficiency virus risk behavior among men who have sex with men in Chennai, India. *Psychol Health Med*, *14*(6), 705-715. doi: 10.1080/13548500903334754
- Sinclair, V. G., & Wallston, K. A. (2004). The development and psychometric evaluation of the Brief Resilient Coping Scale. *Assessment*, *11*(1), 94-101.
- Sivasubramanian, M., Mimiaga, M. J., Mayer, K. H., Anand, V. R., Johnson, C. V., Prabhugate, P., & Safren, S. A. (2011). 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. *Psychol Health Med*, *16*(4), 450-462. doi: 10.1080/13548506.2011.554645
- Steward, W. T., Herek, G. M., Ramakrishna, J., Bharat, S., Chandy, S., Wrubel, J., & Ekstrand, M. L. (2008). HIV-related stigma: adapting a theoretical framework for use in India. *Soc Sci Med*, *67*(8), 1225-1235. doi: 10.1016/j.socscimed.2008.05.032
- Thomas, B., Mimiaga, M. J., Mayer, K. H., Perry, N. S., Swaminathan, S., & Safren, S. A. (2012). The influence of stigma on HIV risk behavior among men who have sex with men in Chennai, India. *AIDS Care*, *24*(11), 1401-1406. doi: 10.1080/09540121.2012.672717
- Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *J Nurs Meas*, *1*(2), 165-178.
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *J Pers Assess*, *52*(1), 30-41.

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