January 2013

Exploring The Prevalence And Effects Of Sexual Stigma, Gender Identity And Sexual Orientation On Mental Health In Men Who Have Sex With Men And Transgender Women In Chennai, India

Megan Marie Mcinnis
Yale University, megmegmarie@gmail.com

Exploring the Prevalence and Effects of Sexual Stigma, Gender Identity and Sexual
Orientation on Mental Health in Men who have Sex with Men and Transgender
Women in Chennai, India

A Thesis Presented to
The Faculty of the School of Public Health and the School of Medicine
Yale University

In Candidacy for the degree of
Master of Public Health and Master of Medical Sciences

May 1, 2013

Megan M. McInnis PA-SII
Class of 2013
Yale School of Public Health
Yale Physician Associate Program

Trace Kershaw, PhD
Associate Professor of Epidemiology
Yale School of Public Health

Abstract

Men who have Sex with Men (MSM) and Transgender (TG) women are known to experience high levels of mental stress secondary to stigma associated with their gender identity or sexual orientation. We conducted a cross sectional study to assess how gender identity, sexual orientation, sexual stigma, violent sexual stigma, and important covariates (life satisfaction, social support, and alcohol dependency) influence major mental health outcomes (depression, anxiety and PTSD) among 101 MSM and 53 TG women recruited from 7 sex cruising zones in Chennai, India. Results showed that the gender identity and sexual orientation scale may provide a new method to subjectively measure MSM and TG women's inner feelings, and that alternative binomial measures may inadequately represent their true gender identity and sexual orientation. Sexual stigma rates were alarmingly high. Furthermore, we found high rates of depression, anxiety, and PTSD symptoms in MSM and TG women. Linear regressions showed that gender identity, sexual orientation and sexual stigma were only significantly related to PTSD symptoms, while social support, life satisfaction, alcohol dependency, and self reported fair or poor health were significantly related to depression or anxiety. These results suggest the need to create interventions that provide access to mental healthcare and education for learning coping mechanisms to deal with sexual stigma and symptoms of PTSD. They also suggest that in the face of high sexual stigma and isolation from society, interventions need to help MSM and TG women learn how to increase social support and maintain good health in order to increase overall wellbeing.

Acknowledgments

I would like to thank the Wilber Downs Fellowship Foundation for sponsoring this research and providing me, and countless other young scholars, with the opportunity to travel abroad and perform unique research that will forever impact my life. To my research assistants, Rudhra Sri, Srinivasan Natarjan, Sundar Kuppan, and Naveen Kumar: thank you for your friendship, thank you for your patience, and thank you for your very hard work. To Jair and Sekar, thank you for accepting me with open arms into your community based organizations and providing a safe environment in which to conduct this study. To Rose, thank you for taking me under your wing, hosting me at your house, and openly sharing your life with me as a Transgender woman in India. To Ruban Nelson, endless thanks for all your administrative assistance and companionship, I couldn't have done it without you!

I would also like to thank Dr. Chakrapani, my Indian advisor, and Murali Shunmugan for their amazing support and guidance during the preparation, data collection in India, and ongoing analysis of data. A very special thanks goes to my Yale advisor, Dr. Trace Kershaw, for all his time and support in the development, implementation, never ending data analysis, and dissemination of this project. Trace, you are the best!

Lastly, I want to thank my parents for their infinite love and support in all of my endeavors, and my wonderful boyfriend, Daniel Wood, for putting up with my craziness at all hours of the night and loving me no matter what.

Table of Contents

List of Tables

Introduction

Men who have Sex with Men (MSM) and Transgender (TG) women are known to experience high levels of mental stress secondary to stigma associated with their sexual orientation and gender identity. This may be particularly strengthened in countries where cultural norms prohibit same sex relationships. In India, cultural norms greatly impact daily sexual practices among MSM and men who do not conform to typical male stereotypes. Section 377, is a law established in 1860 in India that criminalized homosexual intercourse, and along with religious beliefs, greatly stigmatized homosexual lifestyles. After nearly 2 decades of activism to repeal the law, the Dehli High Court overturned section 377 in July 2009. Probably due to these cultural, political and religious influences, some MSM in India choose to marry women and have children while secretly having sex with men as a natural 'release of tension' that they do not consider to be in violation of their marriage [1]. Other MSM feel more effeminate, choose not to marry, and only have sexual relationships with men [2]. In both cases MSM are expressing their gender identity and sexual orientation in a manner they feel best fulfills their personal desires and social needs, and cannot be assumed to identify solely as homosexual, bisexual or heterosexual.

Gender identity describes a person's inner experience of gender, regardless of anatomical sex[3], while sexual orientation describes the gender to which a person is most attracted[4]. These two constructs have previously been studied as discrete groups based on labels predetermined by society. When gender identity is addressed it is usually limited to "male", "female" [5], "male to female transgender",

5

and "female to male transgender" [6]. Sexual identity has been described by terms like "heterosexual" versus "non-heterosexual" [7] and "gay or lesbian" versus "bisexual or straight" [5]. Although it has been argued that these constructs fall along a continuum, and that experiences along that continuum might have differential influences on mental health, given the cultural influences and subjective experiences of gender identity and sexual orientation in India.

In India, MSM and TG women experience high levels of stigma toward their sexual orientation (referred to as sexual stigma) which may be in the form of verbal, physical or violent stigma[8]. Sexual stigma has been shown to affect their mental health with respect to depression[9]. Mental health outcomes such as anxiety and posttraumatic stress disorder (PTSD) may also be associated with sexual stigma and sexual minorities[6], but have not been previously studied in the MSM and TG populations in India. This study aims to determine if sexual stigma, gender identity and sexual orientation are associated with poor mental health outcomes while controlling for social determinants in MSM and TG women in Chennai, India.

There is a wide body of research on the prevalence of mental health disorders among MSM communities in countries other than India. A study performed in the USA found that experiences of racism were associated with higher depressive symptoms among Asian and Pacific Islander MSM with 45% of the sample screening above the clinical cutoff for depression [10]. In the UK, gay men and lesbians described more psychological distress than heterosexual men and women, despite similar quality of physical health and levels of social support [5]. Another study in the UK found that sexual discrimination was an independent variable for a

1.5 times higher prevalence of anxiety and depressive disorders in gay men and lesbian women as compared to heterosexual people [7]. These previous studies suggest that the MSM populations exhibit higher rates of mental health disorders than their heterosexual counterparts.

The few studies that have been conducted in India exploring mental health among MSM seem to confirm these findings. A recent study found that 58% of MSM participants in India displayed moderate to severe depression scores, and that sexual stigma was correlated with depression and lower life satisfaction [9]. This result can be interpreted within the minority stress model that states "stigma, prejudice and discrimination create a stressful social environment that can lead to mental health problems in people that belong to stigmatized minority groups"[11]. However, it has only been used as a possible model in India with regards to depression, and has not differentiated sexual stigma from violent sexual stigma, or how they may differentially relate to depression, anxiety or PTSD. Furthermore, previous studies have failed to explore the effects of sexual stigma on mental health outcomes in the context of a continuous gender identity and sexual orientation scale, and other important psychosocial and behavioral variables that have been found to relate to mental health such as social support, life satisfaction, and alcohol use.

There have been few studies looking specifically at mental health in transgender populations, and the findings have been largely inconclusive. It has been shown that transgender persons have lives complicated by numerous challenges that stem from their gender non-conformity and lead to isolation,

discrimination and victimization [12,4,13]. One study in San Francisco found that 62% of male to female transgender persons screened positive for depression [12]. Another study found that 35% of TG participants screened positive for mental health disorders but did not have any significant increase of mental disorders as compared to their lesbian, gay or bisexual counterparts[6]. According to these studies TG women may face high amounts of sexual stigma and violent sexual stigma based on their gender non-conformity, but they do not seem to have increased rates of poor mental health outcomes when compared to their LGB peers

In this study we focused on producing first time data concerning possible determinants of 3 mental health outcomes in populations of MSM and TG women. It is important to monitor and treat mental health in these groups because of their known risk factors of stigma, and the negative effects of poor mental health on a person's actions and ability to make decisions [14]. Therefore, in an attempt to identify factors that could be targeted in future behavioral interventions, we looked at how social covariates (social support, life satisfaction, and alcohol dependency), sexual stigma, gender identity and sexual orientation are associated with mental health, specifically depression, anxiety and PTSD.

Hypothesis
The hypothesis for this study was two-fold. We predicted that (1) higher levels of sexual stigma will be related to poor mental health outcomes in MSM and TG women, and (2) those who rate higher on the gender identity and sexual orientation scale (i.e. identify as women only attracted to men only) will have poorer mental health outcomes.

Research Design

Participants and Procedures

This cross-sectional study was conducted over two months through two community-based organizations (CBO) that serve MSM and TG communities in Chennai, India. Sahodaran and Social Welfare Association for Men (SWAM) provide safe places for MSM and TG women to work, meet friends, receive counseling, and obtain access to medical care. Sahodaran community outreach workers cover 4 sex cruising zones and SWAM community outreach workers cover 3 sex cruising zones. For this study, we employed one community outreach worker from each CBO to recruit participants from their respective cruising zones, and one employee from each CBO to perform face-to-face interviews in the main CBO office. All study team members self-identified as MSM or TG women in order to facilitate a comfortable and safe environment for participants to answer sensitive questions. Recruiters identified participants in specific cruising zones and scheduled an interview at the CBO for the following day. Eligibility criteria included being self-identified as MSM or TG woman, and over 18 years of age. Verbal informed consent was obtained at the time of the 45-minute interview, and a minimal fee of 250 Indian Rupees ($5.00 USD) was offered in return for their time. All interviews were conducted face-to-face in a structured manner. Participation was voluntary, confidential, and did not affect the participant's relationship with the CBO in any way.

We utilized the seven sex cruising zones as a non-random stratification model for recruitment. Using the number of MSM and TG women known to frequent each zone in relation to the total number of MSM and TG women known to visit all 7 sex cruising zones in Chennai, we calculated the number needed to maintain the

same proportion of MSM and TG women from each zone to our sample size. This recruitment strategy ensured a representative sample of MSM and TG women that frequent sex cruising zones throughout Chennai.

To determine the size of our study population we calculated that a sample of at least 150 participants with 10 predictors would provide 80% power to detect a small but meaningful effect size of r = .12. We used the numbers documented for each cruising zone to stratify our recruitment goal of 100 MSM and 50 TG women to closely reflect the proportion of MSM and TG women known to frequent each zone. The interview questionnaire was translated to Tamil, the native language, and then back translated. We conducted a small pilot study with 4 staff members from participating CBOs to obtain feedback on the language and cultural appropriateness of the questions. The final sample size included 154 participants, 101 MSM and 53 TG women.

This study was approved by the IRB Human Subjects Committee of Yale University, and the Indian Network of People Living with HIV+ (INP+) IRB.

Measures

Primary Predictors
Sexual Stigma
The sexual stigma scale is based on the China MSM Stigma scale [15], which was adapted from the homophobia scale [16]. It was further tailored specifically for use in India and showed good reliability in a previous study of MSM and TG women in Chennai (α = .80) [17]. The scale consists of stigmatized scenarios and uses a Likert scale asking how often it (the stigmatized scenario) has been experienced by the

participant from 1 "*Never"* to 4 *"Many times".* Internal reliability for this scale was good (α = .73).

The violent sexual stigma scale isolated 6 out of 11 questions from the sexual stigma scale that specifically dealt with violence against MSM and TG women. Internal reliability for the scale was good (α = .81).

Gender Identity and Sexual Orientation.
Gender Identity was measured on a scale of 1 "*identify as a man"* to 10 "*identify as a woman"*, with the numbers in-between allowing for subjective expression of one's conflicting or intermediate gender identity. Sexual orientation was measured on a scale of 1 "*attracted to women only"* to 10 "*attracted to men only"*, with the numbers in between representing the ambiguities of sexual attraction. These scales were developed with the help of experts in the field to explore the unlabeled territory of gender identity and sexual orientation. They were then combined to form one scale after initial correlation analysis found high correlation (α = .61). The combined scale measures from 2 "*identify as a man and attracted to women only"* to 20 "*identify as a woman and attracted to men only".* Results of the combined gender identity and sexual orientation scale showed adequate internal consistency (α = .76)

Covariates
 Life Satisfaction
Life satisfaction was measured with a slightly adapted Satisfaction With Life Scale[18]. The scale showed high reliability in its first use in an Indian setting using a similar study sample to this study in Chennai (α = .80) [9]. It consists of 5 questions

and presents statements about life satisfaction with responses based on a 5-point

likert scale from 1 "*Strongly disagree"* to 5 "*Strongly agree".* Higher scores indicated

higher life satisfaction experienced by the participant. Results showed good internal

consistency (α = .78).

Social Support
Social support was measured with the Multi-dimensional Scale of Perceived

Social Support (MSPSS) scale consisting of 12 questions assessing support from

friends, family, and a significant other. A 5-point Likert scale was used to determine

levels of social support experienced by participants with a response of 1 indicating

"*Very strongly disagree"* to 5 "*Very strongly agree.*" The scale was used in a previous

study with MSM and TG's in Chennai and displayed good internal reliability (α =

.95)[17], just as it did in this study (α = .88).

Alcohol Dependency
The CAGE questionnaire measures the probability of alcohol dependency

with four questions yielding binomial responses. Its validity has been previously

tested [19];[20] and it has been found to have adequate internal reliability in an Indian

setting (α = .71) [21]. Our results showed good internal reliability (α = .79).

Outcomes
Anxiety
The Beck Anxiety Index (BAI) is a 21-question scale commonly used to

distinguish anxiety from depression. Participants were presented with 21

symptoms and asked to report the degree to which they were present in their daily

life within the past week using a Likert scale from 0 "*not at all"* to 3 "*severely".*

Anxiety was considered severe if the combined score was 26-63, moderate if the score was 16-25, mild if the score was 8-15, minimum if the score was 1-7, and absent if score was 0. Early studies of the BAI found good reliability (α = .94) [22], as well as a recent international study including Indian participants (α = .93) [23]. Results of this study also showed good internal consistency (α = .91).

Depression
        The 6-item Beck Depression Inventory Fast Screen Scale (BDI-FS) was used to determine the prevalence of severe, moderate, mild, or no depressive symptoms experienced by MSM and TG women in the past two weeks. The scale showed high internal reliability (α = 0.85) in a previous study using a similar sample population in Chennai [9]. Each question had a possible score from 0 to 3 and measured the extremes of a particular item i.e. sadness: 0 "*I do not feel sad*" to 3 "*I am so sad or unhappy that I can't stand it.*" A combined score of 10 – 18 represented severe depression, 7-9 represented moderate depression, 4-6 represented mild depression, and a combined score of 0–3 represented no measurable depression. Results showed good internal consistency (α = .74).

Post Traumatic Stress Disorder
        We used the 17-item U.S. Department of Veteran Affairs PTSD checklist for civilians (PCL-C) to quantify PTSD symptoms. Questions ask about symptoms related to a stressful experience, and may not refer to just one traumatic or emotional event, but rather an accumulation of events occurring in everyday life. Participants are asked to think of a problem within the past month and answer each question according to a 5-point Likert scale from 1 "*Not at all*" to 5 "*Extremely.*"

Scoring is based on the sum of the number value of each question as well as positive responses related to three different items/groups of questions [24]. The scale has previously been shown to have high internal consistency (α = .94) [25] which was also found in this study (α = .87).

Data Analysis

All analyses were performed using SAS 9.2. Demographic and descriptive information was determined using means and proportions for continuous and categorical variables respectively. To establish predictors of mental health outcomes, separate stepwise linear regressions were performed for depression, anxiety, and PTSD. Each regression included demographic variables (age, marital status, average monthly income, and self reported health), covariates (social support, life satisfaction, and alcohol dependency) and primary predictors (sexual orientation and gender identity continuous scale, and sexual stigma or violent sexual stigma scale). Each regression was performed in a stepwise fashion in order to determine which predictors significantly contributed to the final model. The sexual stigma, sexual orientation and gender identity scales were forced into each model as primary predictors. A separate regression for each mental health outcome was performed with the violent sexual stigma scale to determine if general sexual stigma, or specifically violent sexual stigma, was a stronger predictor for mental health outcomes.

Results

Table 1 reports the demographic variables covariates and primary predictors for MSM and TG women. The average age for MSM participants was 33 years old (SD

8.5) and the average age for TG women participants was 31 years old (SD 8.6*).*

Approximately 37% MSM and 15% TG women were currently or had previously

been married to a woman. Only 1% MSM and 4% TG women were illiterate, while

45% MSM and 43% TG women had completed 12th grade or higher education. The

average monthly income for MSM was $114.4 USD (SD $82.97) and for TG women

was $134.7 USD (SD $75.9).

Covariates

MSM and TG did not differ on life satisfaction, social support, or alcohol
dependency.

Primary Predictors

The mean score on the gender identity and sexual orientation scale for MSM

was 14 (SD 4.5) while the mean score for TG women was 18 (SD 2.7). These results

are significantly different (p = <.0001) and suggest that TG women are more likely

to identify as a woman only attracted to men only than their MSM counterparts.

There were no differences in rates of sexual stigma between MSM and TG

women (p = 0.16), although mean values indicated that both MSM and TG

experienced high rates of sexual stigma. To explore this further we looked at the

individual items comprising the sexual stigma scale (Table 2). Ninety three percent

of MSM and 87% of TG women heard from others that men who have sex with men

are not normal, 86% of MSM and 85% of TG women reported having to pretend not

to have sex with men in order to be accepted, 65% percent of MSM and 57% of TG

women have felt pressure to marry a woman, 12% MSM and 21% TG women have

lost a place to live because of their sexual orientation, and 21% MSM and 28% TG

women have lost a job or career for having sex with men. Sexual stigma questions

pertaining to violent stigma found that nearly 35% of MSM and 51% of TG women reported having been beat up for having sex with men, 43% percent of MSM and 57% of TG women have been verbally harassed by police for having sex with men, 28% MSM and 53% TG women have been physically harassed by the police for having sex with men, 27% of MSM and 34% of TG women have been sexually harassed by police for having sex with men, 84% of MSM and 77% of TG women have been made fun of for having sex with men, and 44% of MSM and 48% of TG women have been blackmailed for having sex with men.

Outcomes

Table 3 shows mental health outcomes. Results showed that about 28% of MSM and 40% of TG women reported moderate to severe anxiety, 71% of MSM and 68% of TG women displayed moderate to severe depressive symptoms, and 40% of MSM and TG women screened positive for PTSD. Levels of anxiety, depression, and PTSD did not significantly differ between MSM and TG, suggesting we could combine them for subsequent analyses.

Linear Regressions

Regressions were constructed to determine how sexual stigma, gender identity and sexual orientation relate to mental health outcomes while controlling for demographic variables and covariates (Table 4).

For the anxiety regression we found that those more likely to have anxiety were more likely to have self-reported fair or poor health (B = 8.45 p = .0002), alcohol dependency (B = 1.73 p = .02), poor life satisfaction (B= - 0.59 p = .008) and to have never been married (B = -6.30 p = .002). Gender identity, sexual orientation,

and sexual stigma were not significantly associated with anxiety. Similar results were found when using the violent sexual stigma scale in the regression.

The depression regression found that those more likely to be depressed are more likely to have self-reported fair or poor health (B = 2.31 p = .004) low social support (B = -0.16 p = .0004), and poor life satisfaction (B = -0.19 p = .003). Gender identity, sexual orientation, and sexual stigma were not significantly related to depression. Similar results were found when using the violent sexual stigma scale in the regression.

Lastly, the linear regression for PTSD found that those more likely to have PTSD were more likely to have self-reported fair or poor health (B = 6.59 p = .009), poor life satisfaction (B = -1.00 p = .0001), to have never been married (B = -4.58 p = .047), to experience higher rates of sexual stigma (B = 0.41 p = .028), and to rate lower on the gender identity and sexual orientation scale (B = -0.67, p = .012). Results were similar when using the violent sexual stigma scale except that the variable "never been married" was no longer a significant determinant.

Moderators
Interaction terms were tested to determine if ever being married moderated the effects on the relationship between the primary predictors (sexual stigma and gender identity and sexual orientation scales) and mental health outcomes. These interactions were tested because the cultural norms and experiences of stigma, sexual orientation, and gender identity might manifest differently for those who adopted more traditional norm roles such as marriage, and those who did not.

Results showed no significant interactions, indicating that marital status did not moderate these relationships.

Discussion

To our knowledge, this is the first study to quantify the prevalence of anxiety and PTSD in MSM and TG populations in Chennai, India. Results showed that MSM and TG women in India had severe rates of depression, anxiety, and PTSD. Depression was the most prevalent mental health problem followed by PTSD and anxiety. Furthermore, our results show that MSM and TG persons in Chennai, India face extreme non-violent and violent sexual stigma from society. Previous studies have exhibited similar results[9,8,4,15]. Despite these high rates of poor mental health and stigma, our hypotheses exploring the association of stigma, gender identity, sexual orientation and mental health were only partially supported.

Sexual stigma, gender identity and sexual orientation were not associated with depression and anxiety, yet showed strong associations with PTSD. These findings are important because in order to positively affect the mental wellbeing of MSM and TG persons in India, we need to understand important, modifiable factors that might be related to poor mental health outcomes.

Our results found that sexual stigma was associated with PTSD. No previous studies have explored correlations between stigma and PTSD in MSM and TG populations in India. PTSD is well known to be a debilitating disease that has been shown to increase risky sexual behaviors in MSM as well as greatly affect their normal daily function in society[26]. Educational interventions and increased awareness focused on sharing the effects of sexual stigma on MSM and TG persons

are absolutely needed in India. Great strides towards awareness have already begun, with events such as Gay Pride month, parades, demonstrations, and MSM and TG women taking an active role in research and outreach programs. These continued actions, as well as developing interventions to help affected MSM and TG women learn appropriate coping strategies to help them deal with traumatic experiences associated with PTSD may help decrease rates and improve their overall mental wellbeing. The experiences of stigma might have resonated more with PTSD than anxiety and depression because being the target of stigma can be a traumatic event that may cause a person to constantly ruminate in fear of the event reoccurring. These feelings are more consistent with symptoms of PTSD, while in this study depression and anxiety seem to be more highly associated with social factors like support, physical health and satisfaction with life.

In addition to stigma, gender identity and sexual orientation significantly related to PTSD. Participants who identified as women and were only attracted to men were less likely to display PTSD symptoms. These results could also be carefully interpreted to consider that participants who scored higher on this scale may feel less conflicted about their identity. It may be that those who feel like women and are attracted to only men believe they are fulfilling cultural standards by playing the female role in a relationship. Such MSM and TG women may be less affected by sexual stigma and other traumatic events that are associated with PTSD symptoms because they do not actually believe they are cultural outcasts. On the other hand, MSM or TG women that do not feel they are able to fulfill a culturally acceptable gender role in India may be more susceptible to harmful events related

19

to their gender identity and sexual orientation. It may be the undefined area of feeling both male and female and being attracted to both men and women that creates greater inner turmoil and leads to symptoms of PTSD. It is in this area that programs must meet participants in order to support their feelings, help them accept themselves, and work to bring awareness to society so that it may accept them as well. Further research is necessary in India to continue to explore the range of gender identity and sexual orientation within the MSM and TG women populations, and how they may be differentially affected by strong cultural gender roles.

Our study, however, did not find sexual stigma to be significantly associated with depression or anxiety. Instead, results suggested that social support and life satisfaction were stronger determinants of anxiety and depression than sexual stigma. Logie et al. reported similar results in their sample of MSM in Chennai. They found that social support and resilient coping were significant predictors of depression, while sexual stigma only approached significance[17]. Social support and life satisfaction may possibly play a greater role in depression and anxiety in urban settings like Chennai, where there is a larger population of sexual minorities as compared to a more conservative, rural location. Accordingly, sexual stigma may have a greater impact on sexual minorities in a rural setting where social ideas about MSM and TG lifestyles may be more conservative[27]. This is further supported by Logie et al. who found aspects of sexual stigma to significantly relate to depression in a population of MSM living in a rural area outside Chennai[17].

Our results suggest that in order to help lower the extremely high rates of depression and moderate rates of anxiety found in MSM and TG persons in Chennai, India, interventions need to focus on continuing to build strong social support groups that provide friendship and safe environments for MSM and TG women. Furthermore, it has been well studied that TG women tend to leave their family's home at an early age and create communities where they live together[28]. Many times these communities are highly discriminated against, which increases the amount of stress and violence that occurs within the community, further affecting mental and physical wellbeing. By working to provide safe and supportive communities for TG women to live, interventions may help increase social support and life satisfaction and therefore decrease rates of depression and anxiety.

These findings argue that although MSM and TG women experience very high rates of sexual stigma and have gender identities and sexual orientations that are not widely accepted by society or religion in India, the most important factors that affect depression and anxiety are struggles that could be experienced by anyone. Low levels of social support, alcohol dependency, poor life satisfaction, poor overall health and having never been married were all associated with symptoms of depression or anxiety. Social support specifically related to depression while alcohol dependency and having never been married related to anxiety. It could be that these factors, accompanied by high rates of sexual stigma and gender non-conformity, create a snowball effect that is difficult for MSM and TG women to control. Researchers have the unique opportunity to improve mental wellbeing within these populations by focusing on improving social support, providing workshops to

educate participants about healthy coping strategies, and encouraging healthy living

practices including diet and visiting healthcare and mental healthcare specialists.

Unfortunately, many of the issues MSM and TG women face stem from political,

cultural, and religious practices. Some of the most helpful interventions in India may

include using social media to increase awareness about MSM and TG women so as to

slowly educate Indian society and decrease sexual stigma in hopes of some day

reaching a state of acceptance. For these changes to come to fruition the journey

must start small, and focus on supporting, educating, providing mental health

treatment as well as coping strategies in order to improve the overall wellbeing of

MSM and TG persons in Chennai, India.

Limitations of Study

        This study has several limitations. First we used a non-random sample

stratified by sex cruising zones throughout Chennai. Future research will need to

replicate the findings to ensure generalizability to MSM and TG women throughout

India in similar urban settings. Furthermore this study was cross sectional and

therefore direction of causality cannot be determined. Longitudinal cohort studies

are needed to provide stronger data supporting the relationships found in this study

and to help identify the upstream determinants of mental health problems in MSM

and TG women in India. Another limitation is that the anxiety and PTSD scales have

never been used before with MSM and TG populations in Chennai. They may have

introduced information bias based on cultural beliefs about how emotional

problems may or may not manifest into somatic feelings and behaviors. Future

studies are needed to replicate our findings of high rates of anxiety and PTSD in

these populations. Another limitation is that this study did not measure mental health disorders by DSM criteria. Instead we used scales of psychiatric symptoms that served as screening tools. We cannot determine if those who screened positive for depression, anxiety, or PTSD actually had the disorder, only that they were at higher risk. Future studies need to employ diagnostic tools (ie psychiatric visits) in order to determine if participants truly have mental health disorders. Only then can researchers identify which determinants are actually associated with the disorders.

Strengths of Study

To our knowledge, this was the first study to screen for anxiety and PTSD symptoms as important mental health outcomes. Our results highlight the need for greater focus on mental health awareness and efforts to improve social support, life satisfaction, and sexual stigma of MSM and TG women. Furthermore, our study explored a new and provocative way of measuring gender identity and sexual orientation in sexual minorities that may allow for a more accurate portrayal of the inner experiences that define MSM and TG women. Our results suggest important determinants of mental health in India that community interventions can utilize in order to further study and impact the lives of MSM and TG women so that they may begin to thrive in a society where they have been suppressed for so long.

References

1. Asthana SO, R. The social construction of male 'homosexuality' in India: implications for HIV transmission and prevention. *Social Science and Medicine.* 2001;52:15.
2. Khan S. Culture, Sexualities, and Identities: Men Who Have Sex with Men in India. *Journal of homosexuality.* 2001;40(3/4):18.
3. Shankle MD. *The Handbood of Lesbian, Gay, Bisexual, and Transgender Public Health: A Practitioner's Guide to Service*. Binghamton, NY 13904-1580: Harrington Park Press; 2006.
4. Garofalo R, Deleon J, Osmer E, Doll M, Harper GW. Overlooked, misunderstood and at-risk: exploring the lives and HIV risk of ethnic minority male-to-female transgender youth. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine.* Mar 2006;38(3):230-236.
5. King MM, E. Warner, J. Ramsay, A. Johnson, K. Cort, C. Wright, L. Blizard, R. Davidson, O. Mental health and quality of life of gay men and lesbians in England and Wales: Controlled, cross-sectional study. *The British Journal of Psychiatry.* 2003;183(6):552-558.
6. Mustanski BS, Garofalo R, Emerson EM. Mental health disorders, psychological distress, and suicidality in a diverse sample of lesbian, gay, bisexual, and transgender youths. *American journal of public health.* Dec 2010;100(12):2426-2432.
7. Chakraborty A, McManus S, Brugha TS, Bebbington P, King M. Mental health of the non-heterosexual population of England. *The British journal of psychiatry : the journal of mental science.* Feb 2011;198(2):143-148.
8. Chakrapani VN, P. A.; Shunmugan, M.; McLuckie, A.; Melwin, F. Structural Violence Against Kothi-Identified Men who Have Sex With Men in Chennai, India: A Qualitative Investigation. *AIDS Education and Prevention.* 2007;19(4):19.
9. Logie C. *Exploring the Experiences of Sexual Stigma, Gender Non-Conformity Stigma and HIV-related Stigma and their Associations with Depression and Life Satisfaction Among Men Who Have Sex With Men in South India*: Graduate Department of Social Work, University of Toronto; 2010.
10. Yoshikawa HA-DW, Patrick; Chae, David H.; and Jih-Fei Cheng. Do Family and Friendship Networks Protect Against the Influence of Discrimination on Mental Health and HIV Risk Among Asian and Pacific Islander Gay Men? *AIDS Education and Prevention.* 2004;16(1):17.
11. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological bulletin.* Sep 2003;129(5):674-697.
12. Clements-Noelle KM, Rani; Guzman, Robert; Katz, Mitchell. HIV Prevalence, Risk Behaviors, Health Care Use, and Mental Health Status of Transgender Persons: Implications for Public Health Intervention. *American journal of public health.* 2001;91(6):915 - 921.

13.   American Psychological Association TFoGIaGV. Report of the Task Force on Gender Identity and Gender Variance. 2009:106.

14.   Salomon EA, Mimiaga MJ, Husnik MJ, et al. Depressive symptoms, utilization of mental health care, substance use and sexual risk among young men who have sex with men in EXPLORE: implications for age-specific interventions. *AIDS and behavior.* Aug 2009;13(4):811-821.

15.   Neilands TB, Steward WT, Choi KH. Assessment of stigma towards homosexuality in China: a study of men who have sex with men. *Archives of sexual behavior.* Oct 2008;37(5):838-844.

16.   Diaz RMA, G.; Bein, E.; Henne, J.; Marin, B. V. The Impact of Homophobia, Poverty, and Racism, on the Mental Health of Gay and Bisexual Latino Men: Findings From 3 US Cities. *American journal of public health.* 2001;91(6):6.

17.   Logie CH, Newman PA, Chakrapani V, Shunmugam M. 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.* Apr 2012;74(8):1261-1268.

18.   Diener E, Emmons RA, Larsen RJ, Griffin S. The Satisfcation With Life Scale. *Journal of Personality Assessment.* 1985;49(1):5.

19.   Ewing JA. Detecting Alcoholism: The CAGE Questionnaire. *JAMA.* 1984;252(14):3.

20.   Dhalla S, Kopec JA. The CAGE Questionnaire for Alcohol Misuse: A Review of Reliability and Validity Studies. *Clin Invest Med.* 2007;30(1):10.

21.   Mischke HD, Venneri RL. Reliability and Validity of the MAST, Mortimer-Filkins Questionnaire and CAGE in DWI Assessment. *Journal of Studies on Alcohol.* 1987;48(5):10.

22.   Fydrich T. Reliability and Validity of the Beck Anxiety Inventory. *Journal of Anxiety Disorders.* 1992;6:7.

23.   Van Dam NT, Sheppard SC, Forsyth JP, Earleywine M. Self-compassion is a better predictor than mindfulness of symptom severity and quality of life in mixed anxiety and depression. *J Anxiety Disord.* Jan 2011;25(1):123-130.

24.   PTSD VNCf. Using the PTSD Checklist (PCL). In: Affairs USDoV, ed. www.ptsd.va.gov2010:2.

25.   Blanchard EB, Jones-Alexander J, Buckley TC, Forneris CA. Psychometric properties of the PTSD checklist (PCL). *Behaviour research and therapy.* 1996;34(8):5.

26.   Reisner SL, Mimiaga MJ, Safren SA, Mayer KH. Stressful or traumatic life events, post-traumatic stress disorder (PTSD) symptoms, and HIV sexual risk taking among men who have sex with men. *AIDS care.* Dec 2009;21(12):1481-1489.

27.   Drumheller K, McQuay B. Living in the Buckle: Promoting LGBT Outreach Services in Conservative Urban/Rural Centers. *Communication Studies.* 2010;61(1):70-86.

28.   Chakrapani V, Babu P, Ebenezer T. Hijras in sex work face discrimination in the Indian health-care system. *Ethical Issues.* 2002:3.

Table 1: Demographic Variables, Covariates, and Primary Predictors of MSM and TG Women

	MSM (N = 101)	TG women (N = 53)	p
Demographic Variables			
Age	M=32.77 (SD=8.51)	M=30.94 (SD=8.55)	.21
Currently or previously married to a woman	36.63% (N=37)	15.09% (N=8)	.01
Education level			.79
Illiterate	0.99% (N=1)	3.77% (N=2)	
5th grade	12.87% (N=13)	11.32% (N=6)	
8th grade	19.80% (N=20)	20.75% (N=11)	
10th grade	21.78% (N=22)	20.75% (N=11)	
12th grade	23.76% (N=24)	22.64% (N=12)	
College	15.84% (N=16)	15.09% (N=8)	
Master's Degree	4.95% (N=5)	5.66% (N=3)	
Average Monthly Income in Rupees (dollars)	M=5149.31 (SD=3733.46) (M=$114 .43 (SD=$82.97))	M=6061.13 (SD+3417.73) (M=$134.69 (SD=$75.95))	.18
Any Alcohol use in past 3 months	51.49% (N=52)	62.26% (N=33)	.20
Covariates			
Life Satisfaction Scale	M=14.4 (SD=4.0)	M=14.7 (SD=3.9)	.63
Social Support Scale	M=36.9 (SD=8.4)	M=38.0 (SD=8.9)	.48
Alcohol Dependency Scale	M=0.7 (SD=1.1)	M=1.1 (SD=1.3)	.08
Primary Predictors			
Sexual Stigma Scale	M=21.5 (SD=5.4)	M=22.9 (SD=5.9)	.16
Gender Identity and Sexual Orientation Scale	M=14.0 (SD=4.5)	M=18.0 (SD=2.7)	<.0001

Note: Chi-square used for categorical variables and t-tests for continuous variables.

Table 2: Sexual Stigma and Violent Sexual Stigma Descriptive results for MSM and TG Women

Sexual Stigma Statistics	% MSM (N = 101)	% TG women (N = 53)
Non Violent Sexual Stigma		
Has heard that men who have sex with men are not normal	93.1% (94)	86.8% (46)
Has had to pretend at least once to not have sex with men in order to be accepted	86.1% (87)	84.9% (45)
Has felt pressure to marry a woman even though would rather be with a man so that someone will take care of them when they are old	65.4% (66)	56.6% (30)
Has lost a place to live for having sex with men	11.9% (12)	20.8% (11)
Has lost a job or career for having sex with men	20.8% (21)	28.3% (15)
Violent Sexual Stigma		
Has been beaten up for having sex with men	34.7% (37)	51.0% (27)
Has been verbally harassed by police for having sex with men	42.6% (43)	56.6% (30)
Has been physically harassed by police for having sex with men	27.7% (28)	52.8% (28)
Has been sexually harassed by the police for having sex with men	26.7% (27)	34.0% (18)
Has been made fun of or called names for having sex with men	84.2% (85)	77.4% (41)
Has been blackmailed for having sex with men (MSM N = 100 TG N = 52)	44.0% (44)	48.1% (25)

Table 3: Mental Health Outcome Results for MSM and TG Women

	MSM (N=101)	TG women (N = 53)	p
Screened Positive for PTSD	39.6% (N=40)	39.6% (N=21)	.99
Moderate to Severe Anxiety	27.7% (N=28)	39.6% (N=21)	.13
Moderate to Severe Depression	71.3% (N=72)	67.9% (N=36)	.66

Table 4: Linear Regression Results for Anxiety, Depression and PTSD

	Anxiety Regression Model (R^2) = 0.20	Depression Regression Model (R^2) = 0.32	PTSD Regression Model (R^2) = 0.20
Gender Identity and Sexual Orientation Scale	B=-0.25 (SE=0.21)	B=-0.05 (SE=0.06)	B=-0.60 (SE=0.24)**
Sexual Stigma Scale	B=0.05 (SE=0.16)	B=0.002 (SE=0.05)	B=0.41 (SE=0.18)*
Alcohol Dependency	B=1.73 (SE=0.74)*	B=0.34 (SE=0.22)	--
Life Satisfaction Scale	B=-0.59 (SE=0.22)**	B=-.23 (SE=0.08)**	B=-1.00 (SE=0.25)**
Social Support Scale	--	B=-.13 (SE=0.04)**	--
Self Reported Fair or Poor Health	B=8.45 (SE=2.17)**	B=1.91 (SE=0.65)**	B=6.59 (SE=2.49)**
Currently or Previously Married	B=-6.30 (SE=1.99)**	--	B=-4.58 (SE=2.29)*
Mean Monthly Income	--	B=0.81 (SE=0.53)	--
Age	--	--	--
Education	--	B=-1.44 (SE=0.77)	--

*statistically significant at the 0.05 level
*statistically significant at the .001 level
--not included in stepwise model due to lack of correlation