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# High Prevalence of First Forced Sex and Determinants of HIV/AIDS among MSM in South India

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## Abstract

**Background:** Forced sex is one of the risk factors of psychological morbidities, HIV and other sexually transmitted infections. Limited studies on MSM are available in Indian context and no systematic attempt has been made to assess the impact of first forced sex on males and as a risk factor of HIV. Therefore, the present study has examined the prevalence of first forced sex as well as its linkage with HIV infection in South India.

**Methods:** The present study has been used data from the cross sectional survey known as Integrated Behavioural and Biological Assessment during 2009-2010. The survey was conducted in the selected districts of states namely, Andhra Pradesh, Tamil Nadu and Maharashtra. The sample size of MSM was 3875. Bivariate and multivariate logistic regression analysis was used.

**Results:** Those MSM who have reported of their first forced sex with males, are found more likely to be HIV positive (34.69% vs. 29.06% and OR=1.297,  $p<0.05$ ) as compared to those MSM who did not have first forced sex with males. In Tamil Nadu, prevalence of first forced sex with males among MSM highest in Salem (57.1%) followed by Madurai (56.4%) and Dharmapuri (51.2%). In Andhra Pradesh, 23.5 % MSM have had first forced sex with males in Hyderabad followed by Guntur (16.8%), East Godavari (8.8%) and Vizag (4.0%).

**Conclusion:** The present study has found that first forced sexual intercourse with a male is a significant risk factor for the HIV infection among MSM in South India. Therefore, there is an urgent need to control the prevalence of first forced sex and transmission of HIV infection.

### Keywords:

HIV; MSM; India; AIDS; Forced sex

## Introduction

Forced sex is one of the risk factors of psychological morbidities, HIV and other sexually transmitted infections (STI) [1-5]. Previous studies have shown that experiencing sexual violence in childhood/adulthood has impacted their health negatively, making them more prone to HIV and even physical and mental disability, for instance, depression [6-9]. Men who have sex with men (MSM) are the most exposed population at a high risk of HIV/AIDS in the world [10-12]. MSM in developing countries like India are at a high risk of HIV/AIDS [12]. In India, the prevalence of HIV infection has decreased since the last decade [10]. However, the prevalence of HIV has increased among MSM in southern states of India [10, 13]. In many countries, MSM are a self-identified sub-population. Similarly, in South India, MSM are divided in a few self-identified categories: 'kothis', 'panthis', 'double-decker', 'bi-sexual' and 'hijra/transgender'. Kothis (considered as receptive anal or oral sex) are relatively well-organised and a visible subpopulation of the MSM, while, on the contrary, the panthis are referred to as insertive male partner in South India [14]. Sexual discussion in public is a cultural taboo and is highly stigmatized. Consequently, quantitative data among MSM in India is inadequate [6, 10, 14]. However, India's nodal agency for prevention and control of HIV/AIDS, National AIDS Control Organization (NACO) has estimated HIV prevalence in India to be 7.4% in 2009 among MSM [15] which was more than the prevalence of HIV/AIDS among female sex workers (4.9%) [13]. Numerous studies have been carried out on forced sex and its magnitude on women but very few studies are available which have considered forced sex among Men who have sex with men (MSM). There has been no systematic attempt made to know the impact of first forced sex with males and HIV infection [1, 16, 17]. Therefore, the present study has examined the prevalence of first forced sex and its association with HIV infection.

## Materials and Methods

### Data

The present study has used data from the second series of the cross sectional survey known as Integrated Behavioural and Biological Assessment (IBBA) conducted during the period 2009-2010. The survey was conducted in selected districts of the states of Andhra Pradesh (East Godavari, Hyderabad and Vizag), Tamil Nadu (Dharmapuri, Madurai and Salem) and Maharashtra (Pune and Mumbai/Thane) in India. Time location clustering sampling (TLC) methods have been used to recruit the MSM participants from cruising sites such as parks and local train stations. Firstly, systematic random sampling clusters (i.e., venue/time slots) were chosen by probability proportional to size (PPS). Secondly, from the selected clusters, participants were chosen randomly from among all the eligible participants during the selected time slot [detailed methodology related to survey given here [18, 19].

In Andhra Pradesh and Maharashtra, inclusion criteria were self-identified MSM who were at least 18 years of age and have had any type of sex (oral, anal and manual) with another man in exchange for cash/kind in the past month. In Tamil Nadu, similar inclusion criteria were adopted, except that the type of sex was limited (only anal sex) with another man in the last one month [20]. Interviews were conducted by trained field workers in the local language of the districts, using a structured questionnaire that included questions on socio-demographic characteristics, sexual behaviours and program exposure. Interviews were conducted in private locations. Blood and urine samples were collected for HIV/STI diagnosis. No rectal samples were collected. Rapid Plasma Reagin (RPR) test was used to diagnose syphilis, which was confirmed by the *Treponema pallidum* Haemagglutination Assay (TPHA). *Neisseria gonorrhoeae* (NG) and *Chlamydia trachomatis* (CT) infections was diagnosed using APTIMA Combo 2 (AC2) nucleic acid amplification test on urine samples. The study protocol was approved by the Indian Medical Council of Medical Research (ICMR) and Family Health International (FHI 360) Protections of Human Subject Committee. Informed consents were obtained from all the participants, and in case of illiterate participants, the questionnaire was administered in the presence of a witness [18-20].

First sex as forced for men was assessed by the question: Were you forced to have sex during the first sexual encounter with a male? Responses were recorded in the categories 'No', 'Yes', 'Do not know' and 'No answer'. The author has included only those participants who responded in yes or no because they were sure about the answer and has excluded do not know or no answer from the analysis. Bivariate analysis and logistic regression analysis have been used to assess the relationships with socio demographic, sexual characteristics and HIV infection among MSM. Logistic regression analysis has been used to assess the significance of first forced sex as a risk factor for HIV infection among MSM. The dependent variable is dichotomous; consequently logistic regression analysis has been used. The whole analysis has been performed in SPSS version 20 (SPSS, IBM).

## Results

### Prevalence of first forced sex with male among MSM in South India

**Table 1** illustrates the prevalence of first forced sex among men who have sex with men in selected districts from the states of south India. The present study has found that in Tamil Nadu, 51.5% MSM have reported having had first forced sex with males, which is followed by the prevalence in Maharashtra (16.3%) and Andhra Pradesh (13.3%). Prevalence of first forced sex with male among MSM was found to be the highest in Salem (57.1%), followed by Madurai (56.4%), Dharmapuri (51.2%) and Chennai (41.2%) respectively. In Maharashtra, the prevalence of MSM having reportedly had first forced sex with male in the district of Pune was found to be 19% and that in the district of Mumbai was found to be 14.2%. In Andhra Pradesh, 23.5% of MSM have had first forced sex with males in Hyderabad, followed by Guntur (16.8%), East Godavari (8.8%) and Vizag (4.0%), respectively.

**Table 1** Prevalence of first forced sex of men by MSM in selected states and its districts, South India, 2009-2010.

State/Districts	First Forced Sex		Sample Size
	No	Yes	
Andhra Pradesh	86.7	13.3	1601
East Godavari	91.2	8.8	397
Guntur	83.2	16.8	404
Hyderabad	76.5	23.5	404
Vizag	96	4	398
Maharashtra	83.7	16.3	652
Pune	81	19	279
Mumbai-Thane	85.8	14.2	373
Tamil Nadu	48.5	51.5	1620
Chennai	58.8	41.2	403
Dharmapuri	48.5	51.5	408
Madurai	43.6	56.4	406
Salem	42.9	57.1	403
Total	70.2	29.8	3875

### Prevalence of first forced sex with male among MSM by background characteristics and its determinants

**Table 2** reveals the percentage distribution of first forced sex with male among MSM by background characteristics in south India. The prevalence of HIV-positive males among MSM having reported first forced sex with male was 34.69% as compared to 29.06% HIV-positive males among those MSM who did not have first forced sex with male. MSM who self-reportedly identified themselves as Kothis (38.9%) constitute the highest percentage of those with experience of first forced sex followed by hijra/

transgender (29.89%), double decker (23.87%), bisexual (17.73%) and panthi (12.88%), respectively. The present study found that those MSM who belonged to old age groups (35-39 or 40+ years) have reportedly had first forced sex with male. The prevalence of MSM having at least 6-10 years education that had first forced sex with male was found to be 33.88%. About 31% unemployed MSM have reported first forced sex male whereas 22% of MSM who are students, 33% of MSM who are self-employed/business, 23.84% MSM employed in service and the highest prevalence has been found among those MSM who are working as Massager/pun with 35.39% of the aforementioned population reportedly having had first forced

sex with a male. About 50% MSM have reported having had first forced sex with male who are living with friend/living at hostels; the prevalence is 44% for those who are living alone whereas it is relatively lesser among those who are living with family (27.89%). Approximately 33% MSM, with male sexual partner, have reportedly had first forced sex with male whereas 31% MSM, without male sexual partner, have reportedly had first forced sex with male. The study found that 22.14% MSM, with only female sexual partner, had first forced sex with male whereas around 25% MSM, having both male and female sexual partner, had first forced sex with male.

**Table 2** Percentage distribution of first forced sex with male and Logistic regression analysis (unadjusted and adjusted odds ratio) by their background characteristics among MSM in South India, IBBA, 2009-2010.

Background	First Forced Sex with man		Model 1			Model 2		
			Odds Ratio	Confidence Interval		Odds Ratio	Confidence Interval	
	Yes	Sample Size	(Exp $\beta$ )	Lower Limit	Upper Limit	(Exp $\beta$ )	Lower Limit	Upper Limit
<b>Biological Indicators</b>								
<b>HIV/AIDS infection</b>								
No <sup>®</sup>	29.06	3358	1			1		
Yes	34.69	516	1.297**	1.066	1.58	1.229*	0.99	1.52
<b>Chlamydia</b>								
No	29.91	3831						
Yes	20.93£	43				N/I		
<b>Gonorrhoea</b>								
No	29.81	3868						
Yes	25.00£	4				N/I		
<b>HSV2</b>								
No	38.29	316						
Yes	22.08	154				N/I		
<b>Self-Identity</b>								
Kothi <sup>®</sup>	38.9	2121				1		
Panthi	12.88	466				0.296***	0.22	0.4
Double Decker	23.87	511				0.568***	0.45	0.72
Bisexual	17.73	688				0.408***	0.31	0.53
Hijra/transgender	29.89	87				0.648	0.38	1.1
<b>Socio demographic indicators</b>								
<b>Respondents age (Years)</b>								
<20 <sup>®</sup>	25.44	228				0.925	0.65	1.32
20-24	25.76	1219				0.817	0.57	1.18
25-29	25.06	1161				1.324	0.88	1.99
30-34	33.71	528				1.793***	1.16	2.77

35-39	44.41	367				1.557*	0.96	2.53
40+	40.59	370				1.776**	1.07	2.95
<b>Respondents education</b>								
Illiterate®	23.26	430				1		
1-5 standard	29.13	254				1.356	0.94	1.97
6-10 standard	33.88	1833				1.75***	1.35	2.28
11 standard	26.47	1356				1.606***	1.2	2.16
<b>Source of Income</b>								
Unemployed®	31.34	67				1		
Student	21.99	291				0.88	0.46	1.67
Self-employed/Business	32.91	1188				1.065	0.6	1.89
Service	23.84	990				0.768	0.43	1.37
Labourer/Transport worker	32.65	1023				0.955	0.54	1.7
Massager/Pun	35.39	243				0.873	0.47	1.64
Others	30.99	71				0.759	0.34	1.68
<b>Marital Status</b>								
Never married®	30.37	2723				1		
Currently married	28.7	1122				1.662	1.18	2.34
Widowed/Divorced/Others	20.69	29				0.385**	0.15	1.01
<b>Living Arrangements</b>								
Alone®	44.1	424				1		
With family	27.89	3195				0.745**	0.58	0.95
With friend/in hostel	50.37	135				1.521**	1	2.31
With male sex partner	10.71	84				0.16***	0.08	0.33
Others	2.78	36				0.041***	0.01	0.36
<b>Respondents locality</b>								
Locality®	29.51	3673				1		
Non-locality	35.18	199				0.709*	0.54	0.93
<b>Respondents circumcised</b>								
No®	30.23	3549				1		
Yes	25.23	325				1.516**	1.09	2.11
<b>Sexual Partner Characteristics</b>								
<b>Type of sexual partners</b>								
Only male®	33.49	1932				1		
Only female	21.14	544				0.484***	0.33	0.71
Both male and female	25.14	728				0.517***	0.37	0.73
No main sexual partner	31.24	669				0.955*	0.78	1.18
Total		3874				-	-	-
®is the Reference category, ***p<0.001, **p<0.05, *p<0.01, N/I means not included in the analysis and £Sample sizes less than 25 samples								

**Table 2** also provides information about first forced sex with male as a risk factor of HIV infection. Logistic regression analysis, model 1 provides unadjusted odds ratio whereas model 2 provides adjusted odds ratio by controlling their background characteristics of MSM in south India. In Model 1, MSM with reported first forced sex with male, are found more likely to be HIV-positive (un-adjusted OR=1.297,  $p<0.05$ ) compared to those MSM who did not have first forced sex with male. In Model 2, after controlling for demographic, behavioural and sexual characteristics of MSM, it has been found that first forced sex is a risk factor for HIV infection. MSM having had their first sexual encounter as forced were more likely to be HIV infected (Adjusted odds ratio (AOR)=1.229,  $p<0.001$ ) as compared to MSM who did not experience their first sexual encounter as forced. MSM living in a hostel or with a friend have been found to be more likely to be HIV-infected (AOR=1.521,  $p<0.05$ ) as compared to MSM living alone.

## Discussion and Conclusion

To the author's knowledge, this is the first attempt to examine the association of first forced sex with HIV/AIDS among MSM in India. The present study has found a high prevalence of first forced sex (29.8%) among MSM in southern states of India. The highest prevalence of first forced sex among MSM has been found in Salem (57.1%), followed by Madurai (56.4%), Dharmapuri (48.5%) and Chennai (41.2%). In addition, the study has found strong evidence of first forced sex as a risk factor for HIV/AIDS among MSM. Furthermore, MSM, who have reported living in hostel or with friends, were more vulnerable to be HIV-infected than MSM, who lived alone. Guadamuz et al. found that men were more likely to have had forced sex owing to their friends that also authenticates the findings of the current study [1].

Studies have shown that forced sex has adverse impact on health, resulting in depression, post-traumatic stress, suicidal ideation [1, 21, 22]. In a study conducted by Stall et al. in 2001, it has been found that children and adolescents who suffered from sexual abuse are more vulnerable to depression and dysthymia, substance abuse disorder, identity disorder and are more prone to HIV and sexual risk behaviours, or to the commitment of sexual criminal offenses [22-25]. Thus, earlier studies have clearly shown the adverse effect of forced sex on health, irrespective of gender.

According to the classification of MSM in South India, some kothis engage in both insertive and receptive sex as double-deckers. Studies have also shown that most of the kothis are married and involved in sex with both male and female sexual partners, hence, kothis may be at a high risk of HIV infection and infect both men and women consequently [14, 25]. The present study has found that kothis were more likely to have had first forced sex as compared to the other self-identified subpopulations of MSM. This might be the reason for the high risk of HIV infection among kothis. The study findings revealed first forced sex having been significantly prevalent within the local community among MSM as compared to MSM non-localities.

In conclusion, the current study found a significant association of first forced sex with HIV infection among MSM. There is a need for an innovative program that works with MSM, who had first forced sex and provide proper care to combat the depression, substance abuse disorder, sexual risk behaviour and the high prevalence of HIV infection. The present study clearly points out the need for further rigorous research to understand the association of first forced sex on MSM's health and transmission of HIV infection. Future research is required to estimate the prevalence of forced sex and its association with others factors among MSM. This will help to see the impact of violence on the health of MSM.

## Limitation of the Study

Very limited literature is available on first forced sex among MSM in India. Therefore, it is very difficult to compare the findings with previous literature. This would be a limitation of the study. Another issue to consider would be that the results of the study are totally based on a cross-sectional survey, and very limited questions were available in the survey based on first forced sex among MSM in South India.

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