



## A study on risk factors associated with inconsistent condom and lubricant use among men who have sex with men in central Karnataka, India

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### RESEARCH

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### Abstract

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#### Background

Among the sexual minority groups, the Men who have Sex with Men (MSM) community is a large and scattered network. Sexual activity among MSM is frequent and often unplanned. STI and HIV are major medical problems faced by this vulnerable group. Stigma and discrimination towards this group result in poor access to preventive services that encourage condom and lubricant usage.

#### Method

A cross-sectional, community-based study of 309 MSM was carried out in the Davangere district between December 2008 and February 2010. Participants were identified in three stages: cruising venue identification and mapping; determining eligibility and willingness to participate; and recruitment to the study. Consecutive sampling was used to recruit the participants with the help of a snowball technique, obtaining informed and written consent.

#### Results

Of the participants 79.61% and 88.03% reported inconsistent use of condom and lubricant during the three months prior to the interview, respectively. In multivariate analysis, middle socioeconomic class, sex in a public place

and increased frequency of sex were significantly associated with inconsistent condom use. Whereas, practising both types of anal sex (receptive and insertive), not using a condom during the last sexual encounter and increased frequency of sex were significantly associated with inconsistent lubricant use.

#### Conclusion

Many social and behavioural factors are involved in the inconsistent use of condom and lubricant among MSM. Preventive programmes must identify these factors in order to target consistent condom and lubricant use among the MSM community.

#### Key Words

Inconsistent condom use, Men who have Sex with Men, Human Immunodeficiency Virus, Sexual risk behaviour.

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#### Background

Among sexual minorities, the MSM community is a large and widely scattered network. Validated data regarding the size of this network is unavailable in developing countries. However, based on anecdotal data, it is estimated that approximately 5% of the sexually active men coming from all sectors of society in these countries are involved in homosexual activities.<sup>1</sup>

Studies have shown that in developing countries such as India, sexual activity between men is relatively common in both urban and rural areas and that the initiation of HIV prevention programmes for MSM and the transgender community has lagged behind those targeting heterosexual transmission.<sup>2</sup> Factors such as stigma, discrimination and the criminalisation of homosexuality also creates barriers for the successful implementation of HIV prevention programmes for MSM and transgender communities in such countries.<sup>3</sup>

In India, the National AIDS Control Organisation (NACO) has highlighted a high prevalence of HIV (7.41%) among MSM, which is 15 times greater than the prevalence of HIV (0.48%) in antenatal mothers.<sup>4</sup> Such a high prevalence of HIV may result from the less consistent condom use by the MSM



community which has previously been identified by many studies<sup>1,5-7</sup> from various parts of India.

The MSM community can act as a “bridging population” between the female population through marriage and sexual encounters with other females and the male population from where most of their male sexual partners come.<sup>1</sup>

Frequent homosexual activity, unsafe sexual practice and their role as a bridging population together with discrimination, stigmatisation, social exclusion, marginalisation and a hostile condemning environment towards MSM which prevails in India further increases the chances of HIV/STI spread by this hidden population.

In the era of legalisation of homosexuality, the policy of the Health Ministry clearly states that “promoting condom use” should be a part of an intervention strategy amongst MSM in India.<sup>1</sup> In the background of necessity of promoting consistent condom use among MSM to halt HIV spread, this study was undertaken to evaluate the different factors associated with the inconsistent condom and water-based lubricant use among this group.

## Method

The study was approved by the ethical review board of JJM Medical College, Davangere.

A cross-sectional, community-based study was conducted in the Davangere district of the central part of Karnataka, India between December 2008 and February 2010.

The participants were asked to self-categorize themselves into mutually exclusive subcategories of sexual identity such as kothi (mainly anal receptive), panthi (mainly anal insertive), double deckers (both anal receptive and anal insertive), hijra (transgender), jogappa and bisexual (engaged in both homosexual and heterosexual relationships).

A sample size of 300 was determined on the basis of reported 17% of condom usage in the local area among MSM subjects<sup>8</sup> with relative precision of 25% and a confidence level of 95%.

Participants were identified in three stages: cruising venue identification and mapping; determining eligibility and willingness to participate; and recruitment of participants. Consecutive sampling was used to recruit the participants with the help of a snowball technique, obtaining informed and written consent.

Inclusion criteria were men who were residents of the Davangere district and who were practising sex with men for at least three months prior to the interview.

Subjects were interviewed by using a self-coded standard questionnaire from the Behaviour Surveillance Survey which was modified accordingly.<sup>9</sup>

The outcome variable in our analysis was inconsistent (not always) condom and lubricant use during anal intercourse with a man three months prior to the interview. Variables related to condom and lubricant use were evaluated using bivariate and multivariate logistic regression analyses. Independent variables with bivariate *p* values of  $\leq 0.05$  were further evaluated in multivariate regression models using SPSS version 15.

## Results

There were 309 MSM who reported having anal intercourse with a man three months prior to the interview included in the study. Out of the 309 MSM studied, half (49.19%) were aged between 21 and 30 years, with the mean age being 27 years. Of the subjects 60.84% were from middle socioeconomic class; 18.20% were illiterates. Most (79.61%) of our subjects were employed including 15 sex workers.

### Inconsistent condom use

Of the total study population, 79.61% reported using condoms inconsistently during the three months prior to the interview. In bivariate analysis, low educational attainment, middle socioeconomic class, sex in a public place, not using a condom during the last sexual encounter, increased frequency of sex and presence of STI were significantly associated with inconsistent condom use (Table 1). In multivariate analysis, middle socioeconomic class, sex in a public place and increased frequency of sex were significantly associated with inconsistent condom use (Table 2).

### Inconsistent lubricant use

Of the total study population, 88.03% reported using lubricants inconsistently during the three months prior to the interview. In bivariate analysis, middle socioeconomic class, sex in a public place, practising both types of anal sex (insertive and receptive), not using a condom during the last sexual encounter and increased frequency of sex were significantly associated with inconsistent lubricant use (Table 3). In multivariate analysis, practising both types of sex, not using a condom during the last sexual encounter



and increased frequency of sex were significantly associated with inconsistent lubricant use (Table 4).

Table 1: Demography, behavioural characters, STI and inconsistent condom use of men who have sex with men in bivariate analysis

Variables	Total (%), n=309	Inconsistent condom use (%), n=246	Bivariate analysis	
			OR (95% CI)	p value
Age (years)				
<20	57 (18.5)	51 (89.5)	4.33 (1.18-15.8)	0.02
21-30	177 (57)	132 (74.5)	1.50 (0.53-4.23)	0.44
31-40	57 (18.5)	51 (89.5)	4.25 (1.16-15.5)	0.02
>41	18 (6)	12 (67)	Ref	
Living				
With family	240 (78)	192 (80)	1.01 (0.52-1.98)	0.95
Away from family	69 (22)	54 (78)	Ref	
Education				
Illiterate	62 (20)	56 (90)	5.00 (1.29-19.2)	0.01
Schooling	161 (52)	134 (83)	2.77 (1.16-6.61)	0.02
College	86 (28)	56 (65)	Ref	
Occupation				
Unemployed	73 (24)	67 (92)	3.30 (0.81-13.3)	0.09
Unskilled	155 (50)	116 (75)	0.88 (0.35-2.19)	0.79
Professional	81 (26)	63 (78)	Ref	
Socioeconomic status				
High	30 (10)	18 (60)	0.66 (0.19-2.29)	0.52
Middle	201 (65)	174 (86.5)	2.83 (1.15-6.95)	0.02
Low	78 (25)	54 (69)	Ref	
Habits				
Alcohol	91 (29.5)	69 (76)	0.66 (0.33-1.33)	0.25
Smoking	57 (18.5)	49 (86)	1.29 (0.52-3.20)	0.57
Chewing tobacco	59 (19)	44 (74.5)	0.66 (0.30-1.46)	0.31
Nil	102 (33)	84 (82)	Ref	
Sex place				
Private	210 (68)	155 (74)	0.25 (0.11-0.55)	0.00
Public	99 (32)	91 (92)	Ref	
Type of anal sex				
Receptive	180 (58)	138 (77)	0.77 (0.37-1.58)	0.48
Insertive	67 (22)	58 (86.5)	1.70 (0.64-4.50)	0.28
Both	62 (20)	50 (80.5)	Ref	
Condom use in last sex				
Yes	85 (28)	61 (72)	0.51 (0.28-0.93)	0.02
No	224 (72)	185 (82.5)	Ref	
Multiple partners				
High	86 (28)	68 (79)	0.84 (0.43-1.65)	0.62
Middle	81 (26)	63 (78)	0.78 (0.40-1.54)	0.48
Low	142 (46)	115 (81)	Ref	
Sex frequency				
Low	99 (32)	69 (70)	0.23 (0.09-0.59)	0.00
Middle	144 (47)	117 (81)	0.45 (0.17-1.16)	0.10
High	66 (21)	60 (90)	Ref	
STI				
Yes	96 (31)	82 (85.5)	1.70 (0.88-3.26)	0.00
No	213 (69)	164 (77)	Ref	

Table 2: Demography, behavioural characters, STI and Inconsistent condom use of men who have sex with men in multivariate analysis

Variables	Total (%), n=309	Inconsistent condom use (%), n=246	Multivariate analysis	
			OR (95% CI)	p value
Age (years)				
<20	57 (18.5)	51 (89.5)	0.98(0.09-10.33)	0.99
21-30	177 (57)	132 (74.5)	0.62(0.08-4.66)	0.64
31-40	57 (18.5)	51 (89.5)	2.36(0.25-22.10)	0.45
>41	18 (6)	12 (67)	Ref	Ref
Education				
Illiterate	62 (20)	56 (90)	3.26(0.61-17.36)	0.16
Schooling	161 (52)	134 (83)	1.56(0.46-5.23)	0.47
College	86 (28)	56 (65)	Ref	Ref
Socioeconomic status				
High	30 (10)	18 (60)	1.07(0.16-6.89)	0.93
Middle	201 (65)	174 (86.5)	3.95(1.22-12.75)	0.02
Low	78 (25)	54 (69)	Ref	Ref
Sex place				
Private	210 (68)	155 (74)	0.24(0.07-0.83)	0.02
Public	99 (32)	91 (92)	Ref	Ref
Condom use in last sex				
Yes	85 (28)	61 (72)	0.58(0.19-1.72)	0.33
No	224 (72)	185 (82.5)	Ref	Ref
Sex frequency				
Low	99 (32)	69 (70)	0.15(0.03-0.80)	0.02
Middle	144 (47)	117 (81)	0.22(0.04-1.12)	0.06
High	66 (21)	60 (90)	Ref	Ref

Table 3: Demography, behavioural characters, STI and inconsistent lubricant use of men who have sex with men in bivariate analysis

Variables	Total (%), n=309	Inconsistent lubricant use (%), n=272	Bivariate analysis	
			OR (95% CI)	p value
Age (years)				
<20	57 (18.5)	57 (100)	3.12(1.56-5.68)	0.04
21-30	177 (57)	152 (86)	1.10(0.80-1.32)	0.52
31-40	57 (18.5)	51 (89.5)	2.57(1.12-3.67)	0.04
>41	18 (6)	12 (67)	Ref	
Living				
With family	240 (78)	211 (88)	0.95(0.41-2.19)	0.91
Away from family	69 (22)	61 (88.5)	Ref	
Education				
Illiterate	62 (20)	56 (90)	2.11(0.51-8.76)	0.30
Schooling	161 (52)	146 (91)	2.38(0.79-7.12)	0.11
College	86 (28)	70 (81)	Ref	
Occupation				
Unemployed	73 (24)	63 (86)	0.51(0.11-2.33)	0.39
Unskilled	155 (50)	134 (86.5)	0.54(0.14-2.09)	0.37
Professional	81 (26)	75 (92.5)	Ref	
Socioeconomic status				
High	30 (10)	24 (80)	1.20(0.27-5.20)	0.80
Middle	201 (65)	188 (93.5)	4.50(1.47-13.6)	0.00
Low	78 (25)	60 (77)	Ref	
Habits				
Alcohol	91 (29.5)	73 (80)	0.82 (0.57-1.43)	0.32
Smoking	57 (18.5)	57 (100)	1.81 (0.72-2.80)	0.17
Chewing tobacco	59 (19)	53 (90)	1.16 (0.41-2.01)	0.16
Nil	102 (33)	89 (87)	Ref	
Sex place				
Private	210 (68)	179 (85)	0.37(0.15-0.92)	0.03
Public	99 (32)	93 (94)	Ref	



Type of anal sex				
Receptive	180 (58)	152 (84.5)	0.27(0.08-0.92)	0.03
Insertive	67 (22)	61 (91)	0.50(0.11-2.09)	0.34
Both	62 (20)	59 (95)	Ref	
Condom use in last sex				
Yes	85 (28)	61 (72)	0.15(0.07-0.32)	0.00
No	224 (72)	211 (94)	Ref	
Multiple partners				
High	86 (28)	80 (93)	2.31(0.89-5.98)	0.08
Middle	81 (26)	71 (88)	1.23(0.54-2.76)	0.61
Low	142 (46)	121 (85)	Ref	
Sex frequency				
High	99 (32)	78 (79)	1.02(0.71-1.81)	0.63
Middle	144 (47)	140 (97)	7.77(2.40-25.1)	0.00
Low	66 (21)	54 (82)	Ref	
STI				
Yes	96 (31)	84 (87.5)	0.93(0.44-1.94)	0.84
No	213 (69)	188 (88)	Ref	

Table 4: Demography, behavioural characters, STI and inconsistent lubricant use of men who have sex with men in multivariate analysis

Variables	Total (%) (n=309)	Inconsistent lubricant use (%) (n=272)	Bivariate analysis	
			OR (95% CI)	p value
Sex place				
Private	210 (68)	179 (85)	0.44(0.16-1.25)	0.125
Public	99 (32)	93 (94)	Ref	
Type of anal sex				
Receptive	180 (58)	152 (84.5)	0.17(0.04-0.67)	0.012
Insertive	67 (22)	61 (91)	0.49(0.09-2.46)	0.388
Both	62 (20)	59 (95)	Ref	
Condom use in last sex				
Yes	85 (28)	61 (72)	0.18(0.08-0.41)	0.000
No	224 (72)	211 (94)	Ref	
Sex frequency				
High	99 (32)	78 (79)	1.67(0.53-5.26)	0.379
Middle	144 (47)	140 (97)	7.84(1.97-31.2)	0.003
Low	66 (21)	54 (82)	Ref	

### Discussion

In our study, we observed relatively high rates of inconsistent condom and lubricant use among our subjects. Inconsistent use of condoms was found among 79.61% of MSM in this study. This proportion is higher than the findings of a previous study conducted in the same place in 2006 which was 69%.<sup>8</sup> With such high sexual risk behaviour among MSM; this group is at high risk for the acquisition and transmission of STI/ HIV infection.

We observed that subjects in the younger age group had more inconsistent condom use when compared to older subjects. Previous studies have also demonstrated that young men are more involved in same sex activities and are less likely to use condoms than older men.<sup>10-12</sup> Hence, it

appears that programmes should target young and middle aged MSM to motivate them to use condoms consistently.

Although inconsistent condom use was found in all socioeconomic classes, we found MSM from the lowest and highest economic classes were more consistent with condom use than those from the middle class. This maybe because of the greater awareness in the higher classes and greater motivation of the lower classes due to campaigns run by non-government organisations targeting this group. Our observation indicates that, lack of formal education is directly associated with inconsistent condom and lubricant use and this should be addressed by both government and non-governmental bodies.

Even though alcohol use among MSM was not associated with rates of condom and lubricant use, many studies done in other parts of the world have clearly shown that substance and alcohol abuse among MSM reduces condom usage.<sup>13-15</sup>

MSM practising one or both types of anal intercourse were inconsistently using condoms and lubricants. Programmes targeting the increase in the consistency of condom use should therefore address the responsibilities of both the receptive and the insertive partners in anal intercourse. In order to enable the MSM community to effectively carry out safer sex, teaching condom negotiation skills may be required.

The study has some limitations. First, it was not possible to include representative samples of all types of MSM. A sample of a few types of MSM such as hijras and jogappas who are mainly receptive partners could not be adequately represented. Second, influence of mental status, emotional attachment with partners and other psychosocial factors could not be analysed which are also important in low condom usage. Third, data was self-reported. Hence, recall and reporting bias on condom and lubricant use may exist.

### Conclusion

To conclude, high levels of inconsistent condom and lubricant use among MSM were observed in this study. This indirectly shows that, the risk of future spread of STI/HIV among this group and to the heterosexual population, as MSM acts as a bridging population, is real and significant. Many social and behavioural factors are involved in the inconsistent condom and lubricant use among MSM. Preventive programmes have to identify and target these factors before they effectively promote consistent condom and lubricant use among MSM community.



As a result of this study, we recommend that, HIV prevention programmes must focus more on creating awareness regarding safe sex practices amongst the MSM population. There should be initiation and encouragement of promotive, preventive and curative services for this vulnerable group. HIV programmes working on the MSM community have to scale up their efforts to conduct large-scale qualitative studies on MSM behaviour in this region to know in detail the influence of different factors on consistent condom and lubricant use.

## References

1. Khan S. MSM and HIV in India [Internet]. Jan 2004. Cited/Accessed on 22/06/07. Available from: <http://www.nfi.net/NFI%20publications/Essays/2004/MSM,%20HIV%20and%20India>.
2. Chandrasekaran P, Dallabetta G. Containing HIV/AIDS in India: the unfinished agenda. *The Lancet Infectious Diseases*. 2006; 6(8): 508-521.
3. James Baer. Breaking through barriers, Avahan's scale-up of HIV prevention among high risk MSM and transgender in India. New Delhi: Bill & Melinda Gates Foundation, 2010. Cited/Accessed on 9/12/2010. Available from: <http://www.gatesfoundation.org/avahan/Documents/breaking-thru-barriers.pdf>.
4. HIV Sentinel Surveillance and HIV Estimation in India, 2007. New Delhi: NACO, Ministry of Health and Family Welfare; 2008. Cited/Accessed on 11/08/2009. Available from :[http://www.nacoonline.org/upload/Publication/M&E%20Surveillance,%20Research/HIV%20Sentinel%20Surveillance%20and%20HIV%20Estimation%202007\\_A%20Technical%20Brief.pdf](http://www.nacoonline.org/upload/Publication/M&E%20Surveillance,%20Research/HIV%20Sentinel%20Surveillance%20and%20HIV%20Estimation%202007_A%20Technical%20Brief.pdf)
5. Dandona L, Dandona R, Radhakrishnan S, Kumar GA, Gutierrez JP, Betrozzi JP et al. Sex behaviour of men who have sex with men and risk of HIV in Andhra Pradesh, India. *Int Conf AIDS*.2004 July 11-16; 15: abstract no wepec6082.
6. Brahmam, G.N.V., Kodavalla, V., Raj Kumar, H., Rachakulla,H.K., Kallam, S., Myakala, S. P., Paranjape, R.S., Gupte, M.D., Ramakrishnan, L., Kohli, A. and Ramesh, B.M. Sexual practices, HIV and sexually transmitted infections among self-identified men who have sex with men in four high HIV prevalence states of India. *AIDS*. 2008; 22 (supple 5):S45–S57
7. Trikmani RK, Purohit A, Shah SC, Dodiya VD. Men who have Sex with Men: An ice berg phenomenon in Mumbai. *Int Conf AIDS*.2002 Jul 7-12; 14: abstract no wepeE6536.
8. A situational assessment of males who have sex with males and their sexual partners in Davangere, Karnataka, India, [Internet] Naz Foundation International. Aug 2006. Cited/Accessed on 13/07/07. Available at: [http://www.nfi.net/downloads/knowledge\\_centre/NFI%20publications/Situational%20assessments/Situational%20Assessments/2006\\_NFI-DFID%20India%20Assesment/Karnataka%20final%20district%20reports\\_2006/Davangere%20Report.pdf](http://www.nfi.net/downloads/knowledge_centre/NFI%20publications/Situational%20assessments/Situational%20Assessments/2006_NFI-DFID%20India%20Assesment/Karnataka%20final%20district%20reports_2006/Davangere%20Report.pdf)
9. Amon J, Brown T, Hogle J, MacNeil J, Magnani R, Mills S et al. Behavioural surveillance survey, Guidelines for repeated behavioural surveys in populations at risk of HIV. Family Health International. India. 2000.
10. Kasianczuk MG, Johnston LG, Dovbakh AV, Leszczynski EB. Risk factors associated with condom use among men who have sex with men in Ukraine. *Journal of LGBT Health Research*. 2009; 5(1): 51–62.
11. Chemnasiri T, Netwong T, Visarutratana S, Varangrat A, Li A, Phanuphak P, Jommaroeng R, Akarasewi P, van Griensven F. Inconsistent condom use among young men who have sex with men, male sex workers, and transgenders in Thailand. *AIDS Education and Prevention*. 2010; 22(2): 100–109.
12. Kong TS. Risk factors affecting condom use among male sex workers who serve men in China: a qualitative study. *Sex Transm Infect*. 2008 Nov; 84(6): 444-8.
13. Adams J, Neville S. MSM TALK: Qualitative research about condom use among MSM in Auckland. Centre for Social and Health Outcomes Research and Evaluation. Massey University. May 2008.
14. Lau JT, Cai WD, Tsui HY, Chen L, Cheng JQ. Psychosocial factors in association with condom use during commercial sex among migrant male sex workers living in Shenzhen, mainland China who serves cross-border Hong Kong male clients. *AIDS Behav*; 2009 Oct; 13(5): 939-48.
15. Levine E. Factors affecting condom use by CSWs and MSM in El Salvador [Internet]. 2004. Cited/Accessed on 02/06/2010. Available from: <http://apha.confex.com/apha/132am/techprogram/paper91663.htm>.

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## PEER REVIEW

## CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

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