

# Correlates of Intention to Use Condom among Male Migrant Factory Workers in Northern India

S A RIZWAN<sup>1</sup>, SHASHI KANT<sup>2</sup>, KIRAN GOSWAMI<sup>3</sup>, SANJAY K. RAI<sup>4</sup>, PUNEET MISRA<sup>5</sup>

## ABSTRACT

**Objective:** Consistent condom use among high-risk groups, which in turn are dependant on favourable condom use intention is important for the success of HIV/AIDS prevention programmes. We aimed to determine intention to use condom and delineate their correlates in a sample of male migrant workers in northern India.

**Materials and Methods:** This was a cross-sectional facility based survey conducted in 2011. Inclusion criteria were: male migrant workers aged  $\geq 18$  years, who were born outside Haryana, who had moved to current location after 15 years of age, who had worked in the current factory for at least one year and who were able to give valid consent. Face-to-face interviews were conducted with semi-structured questionnaire. Since this analysis was a secondary objective of a larger migrant study, sample size was not calculated separately. Intention to use condom was measured on a five point Likert scale and

expressed as a linear score (higher the score more unfavourable the intention). A linear regression analysis was performed to identify factors independently associated with unfavourable intention.

**Results:** Mean (SD) score for intention to use condom was 10.4 (3.4). Unfavourable intention was associated with men who had migrated to greater number of places, who had lesser HIV/AIDS knowledge, who had never used condom and who had not used condom at last non-spousal sex. The model had an adjusted R-square value of 0.63 and was statistically significant ( $F = 41.9, p < 0.001$ ).

**Conclusion:** Male migrant workers had unfavourable intention to use condom. This intention could be favourably modified by behaviour change communication through already existing targeted intervention platforms, focussing attention on groups with higher mobility, lower education, lower HIV/AIDS knowledge and inconsistent condom use.

**Keywords:** HIV/AIDS, Intention to use condom, India, Male migrant workers

## INTRODUCTION

Male migrant workers have higher Human Immunodeficiency Virus/Acquired Immunodeficiency Disease Syndrome (HIV/AIDS) risk behaviour, particularly inconsistent condom use during non-spousal sex. Male migrants act as a bridge for transmitting HIV infection from core-risk groups such as Female Sex Workers (FSWs) to the general population such as spouses. Consistent condom use among high-risk groups is an important strategy for the success of HIV/AIDS prevention and control programmes [1-3], which in turn depends on favourable 'intention' to use condoms. In spite of the importance of condom promotion, only a few scales that measure attitude towards condoms are available [4-8]. In India, male migrant workers form a group in whom the prevalence of HIV is much higher than general population [9] and hence the need for focussing attention on them. In the continuum of knowledge, intention and practice, intention forms an important component that has a direct influence on practice. Acquisition of knowledge about the benefits of condom use alone is not sufficient to favourably modify practice. The intervening element of intention/attitude is also equally necessary to bring about change in the desired direction. Although measurement of all three components is equally challenging, especially in the field of HIV/AIDS and Sexually Transmitted Infections (STI) research, measuring intention is particularly nuanced. Most of the scales developed for this purpose, have not been validated in India except for one particular scale [4], which was validated by Talukdar et al., [10] among migrant workers in Kolkata. We used this particular scale to measure the 'intention to use condom' among male migrant factory workers in our study area and determine its relation to HIV/AIDS related knowledge and practice.

## MATERIALS AND METHODS

This was a facility based cross-sectional survey conducted in two factories located in Ballabgarh block of Haryana, India during 2011. One of the factories was a steel bars producing unit with approximately 1500 workers, located two kilometre from Primary Health Centre (PHC), Chhainsa and the other factory was a turbine parts manufacturing unit with approximately 2000 workers, located four kilometre from Comprehensive Rural Health Services Project (CRHSP) hospital, Ballabgarh. Eligibility criteria for enrolment were: male migrant workers aged  $\geq 18$  years, those who were born outside Haryana, those who had moved to current location after 15 years of age, those who had worked in the current factory for at least one year, and those who were willing to participate and able to give valid consent. Sample size was not separately calculated for this objective, which was sub part of a larger HIV risk behaviour study among migrant workers. But briefly, a sample size of 710 for the primary objective was calculated on these assumptions: proportion of men reporting unprotected intercourse during last non-spousal sex as 30%, absolute precision of 3%, alpha error of 5%, power of 80% and non-response rate of 20%. A total of 767 men were approached for participation and 755 completed the interview. This analysis excluded 12 men who had never heard of condoms. Due to operational constraints a random sample could not be obtained. Instead, workers attending the factory clinic were approached to take part in a consecutive manner. Although not as robust as a random sample, consecutive sampling is an accepted methodology widely used in HIV Sentinel Surveillance activities in India [9]. Information was collected by face-to-face interview using pretested semi-structured questionnaire. Ethical approval was

obtained from the Ethics Committee of the All India Institute of Medical Sciences, New Delhi, India. Informed written consent was obtained from all the participants. Descriptive analysis was reported in terms of proportions, means and 95% Confidence Intervals (CI). An HIV/AIDS knowledge score was calculated on the basis of 22 questions on HIV transmission and prevention strategies. This was classified into three categories as  $\geq 80\%$  (comprehensive), 50% to 79% (moderate) and  $\leq 49\%$  (poor). 'Intention to use condom' was measured on a four item five point Likert scale and expressed as a linear score. The score ranged from 4 to 12 (higher the score, more unfavourable the intention). Bivariate analysis, followed by multivariable linear regression was conducted to identify factors that were independently associated with intention to use condom score. A p-value of less than 0.05 was considered statistically significant. All analyses were done using Stata/IC 11.1 (StataCorp LP, College Station, TX).

## RESULTS

### Socio-Demographic Profile And HIV Risk Behaviour

The mean (SD) age of participants was 31.4 (8.2) years. Nearly 90% were literate and semi-skilled workers. Three fourth were married but among them nearly half were not staying with their spouses at the current residence. The mean (SD) age at migration was 21.8 (4.9) years, mean (SD) number of places migrated for work was 3.6 (2.9) and mean (SD) total duration of migration was 9.5 (6.7) years. The mean (SD) HIV/AIDS knowledge score was 14.7 (6.6). About 41% of men reported were having atleast one symptom of STI in last one year. Nearly half (45.5%) of the men had ever experienced non-spousal sex, among whom nearly half (47%) had non-spousal sex in the last one year. Nearly one fourth of those reporting non-spousal sex also reported having paid money for sex in the last one year. Among participants who were sexually experienced, only 53% had ever used a condom. Among men who had reported both condom use and non-spousal sex, 40% did not use a condom at last non-spousal sex.

### Intention to use condoms

Mean (SD) score for the 'intention to use condoms' scale was 10.4 (3.4) [Table/Fig-1]. Bivariate analysis showed that following factors

Intention statements	Strongly agree Nos. (%)	Agree Nos. (%)	Neutral Nos. (%)	Disagree Nos. (%)	Strongly disagree Nos. (%)	Mean score	SD
I would try to use or continue using condoms in future	17 (2.3)	457 (61.5)	72 (9.7)	196 (26.4)	1 (0.1)	2.6	0.9
Would avoid using condoms if possible	4 (0.5)	171 (23.0)	122 (16.4)	439 (59.1)	7 (0.9)	2.6	0.8
Would have no objections if partner suggested using condoms	59 (7.9)	335 (45.1)	212 (28.5)	129 (17.4)	8 (1.1)	2.6	0.9
Would be comfortable suggesting using condoms with partner	59 (7.9)	335 (45.1)	212 (28.5)	129 (17.4)	8 (1.1)	2.6	0.9

[Table/Fig-1]: Distribution of participants by statements on intention to use condoms

Independent variables		Intention to condom use score		p-value
		Mean	SD	
Age group (years)	18-24	9.1	2.7	< 0.001
	$\geq 25$	10.8	3.5	
Place of origin	UP	10.2	3.3	> 0.05
	Bihar	10.6	3.5	
	Rajasthan	10.2	3.3	
	Others	10.5	3.5	
Marital status	Married and staying with spouse	10.9	3.5	< 0.001
	Married but not staying with spouse	10.8	3.4	
	Unmarried	8.9	2.6	
Age at which migrated for work purposes (years)	<21	10.2	3.3	< 0.001
	21-25	9.9	3.3	
	>25	11.7	3.4	
No. of places been to for work	1	9.0	2.8	< 0.001
	2-5	10.3	3.3	
	>5	12.4	3.3	
No. of years of migration (completed)	<6	9.1	2.8	< 0.001
	6-10	10.1	3.4	
	11-15	11.5	3.5	
	>15	12.1	3.2	
Mobility index (No. of places migrated divided by duration of migration)	<0.26	10.5	3.4	> 0.05
	0.26-0.50	10.3	3.4	
	>0.50	10.4	3.4	
Duration of stay in Haryana (years)	1-2	10.2	3.4	> 0.05
	3-4	10.3	3.3	
	>4	10.8	3.4	
No. of home visits in the last 1 year	$\leq 3$	10.6	3.4	> 0.05
	>3	10.2	3.3	
Kind of work	Skilled	8.4	2.6	< 0.001
	Semiskilled/ unskilled	10.7	3.4	
Net salary received last month (INR)	$\leq 6000$	10.8	3.4	< 0.001
	> 6000	8.5	2.8	
Educational Status	Illiterate	13.8	2.5	< 0.001
	Primary	12.2	3.1	
	Middle	11.6	3.6	
	Secondary	9.3	2.6	
	Higher secondary	8.4	2.4	
Total HIV/AIDS knowledge score	$\geq 80\%$	8.4	2.4	< 0.001
	50-79%	11.3	3.2	
	$\leq 49\%$	13.1	3.3	
Non spousal sex (NSP)	No NSP/ NSP but not in the last one year	10.6	3.4	< 0.05
	NSP in the last one year	9.9	3.3	
Paid money for sex in the last one year	No	10.4	3.4	> 0.05
	Yes	10.7	3.4	
Ever use of condom	Yes	8.5	2.3	< 0.001
	No	12.1	3.3	
Condom use at last non-spousal sexual intercourse	No	12.2	3.3	< 0.001
	Yes	7.8	1.8	
Consistency of condom use during non-spousal sexual intercourse	Always/ most of the time	7.8	1.8	< 0.001
	Sometimes/never	12.3	3.4	

Ever had sex	No	9.0	2.5	< 0.001
	Yes	10.6	3.4	
Age at initiation of sexual intercourse	<= 18 year	11.0	3.5	< 0.01
	>18year	10.1	3.3	
Consumed alcohol in the last one year	No	9.5	3.0	< 0.001
	Yes	10.8	3.5	
Consumed alcohol before last non-spousal sexual encounter	No	9.4	3.0	< 0.001
	Yes	12.1	3.6	
Self-reported symptoms of STI	No	9.2	2.8	< 0.001
	Yes	12.1	3.4	

**[Table/Fig-2]:** Bivariate Analysis – effect of independent covariates on 'intention to use condoms' score  
 Note:- Student's t-test applied for binary category variables and ANOVA test applied for more than 2 category variables

Variable	B	SE	t	95% CI		p-value
				Lower limit	Upper limit	
Number of places migrated	0.154	0.045	3.438	0.066	0.243	< 0.001
Total HIV/AIDS knowledge score	-0.216	0.025	-8.768	-0.265	-0.168	< 0.001
Age at initiation of sex	-0.170	0.088	-1.928	-0.344	0.004	< 0.05
Ever used condom	1.747	0.387	4.510	0.984	2.510	< 0.001
Condom use at last non-spousal sex	-1.249	0.421	-2.962	-2.078	-0.419	< 0.01

**[Table/Fig-3]:** Multiple linear regression - independent predictors of 'intention to use condoms' score

were significantly associated with the score: age, marital status, age at migration, number of places migrated, duration of migration, kind of work, salary, education, HIV/AIDS knowledge, non-spousal sex, condom use, sexual experience, age at initiation of sex, alcohol consumption, and STI symptoms [Table/Fig-2]. In order to identify variables from this list that were independently associated, multiple linear regression by backward stepwise method was performed. This showed that unfavourable intention to use condom was associated with greater number of places migrated, lesser HIV/AIDS knowledge score, younger age at sexual debut, not having used condom ever and not having used condom at last non-spousal sex [Table/Fig-3]. The model had an adjusted R-square value of 0.63 and was statistically significant ( $F = 41.9$ ,  $p < 0.001$ ).

## DISCUSSION

Male migrant workers in this study had an overall unfavourable intention to use condom score i.e., 10.4. Similarly, a score of 12.6 was reported in a study done among migrant workers of Kolkata with the same scale by Deb AK et al., [11]. Both of these studies were done among migrant workers with similar socio-demographic characteristics. Therefore, this study adds strength to the notion that migrant workers in India in general have a negative intention towards condom use. In contrast, studies from western countries like the USA have reported that migrants had fewer negative beliefs about condom use [12]. The different levels of education and different settings between these countries could explain this contradiction.

Further investigation into this issue by using multiple regression revealed that men with greater mobility, who had lesser HIV/AIDS knowledge, who were younger at sexual debut, who have had never used condoms and who had not used condom at last non-spousal sex were more likely to have unfavourable intention towards condom use. In the study by Deb AK et al., [11] factors that were found associated with unfavourable intention were quite different from our study such as age, marital status, education level,

having heard of HIV/AIDS and presence of STI. This difference was probably due to the difference in variables measured and analysis technique.

According to the theories of behaviour change, knowledge and intention precede practice. This study measured the intention component, which was rather poor in this group. This was also associated with low prevalence of condom use – a natural consequence of lack of intent. Major reasons that these men reported for low condom use during non-spousal sex were 'lack of time' or 'did not think it was necessary' or 'did not think about it' whereas major reasons for non-use of condom reported in other studies include reduction of sexual pleasure, religious reservations, lack of availability and fear [13,14]. This shows that the reasons for non-use may be different in migrant workers who have some level of knowledge regarding condoms. In this context reasons seem to be more related to time and preference issues rather than misconceptions and fear.

Promotion of condom use during non-spousal sex among high-risk groups such as migrants is one of the most important HIV prevention strategies in India because the major route of transmission here is sexual [15]. Although condom use has been widely proven to reduce the transmission potential of HIV via the sexual route [16] the adoption of condom use is dismal in this country even among the high-risk groups [17-20]. Promotion of condom use is also important for control of STIs and due to the synergistic relationship between STI and HIV, there is an additive advantage for HIV control activities.

This study has certain limitations that should be taken into account during interpretation. We did not measure certain confounding factors such as partner preference and price dynamics, which could have played a role in determining intention score. We couldn't get a representative sample of all types factories in the study area, but the results are likely to be broadly applicable to migrant workers in such settings. We did not make any explicit attempt to quantify social desirability bias, which is often associated with sensitive questions on non-spousal sex and condom use. Future large-scale studies on this subject can try to eliminate these limitations during the design stage itself. In spite of these limitations the findings of this study have provided useful insights on migrants workers' attitude towards condom use.

## CONCLUSION

It can be stated that in the continuum of knowledge, intention and practice, migrant workers fared somewhat better in the knowledge part whereas they fared poor in intention and practice parts with regard to condom use during non-spousal sex.

## RECOMMENDATIONS

Some of the recommendations that arise from the study findings are as follows. HIV prevention programmes in India aim to reduce risky sexual behaviours among high-risk groups and to achieve this goal favourable intentions towards condom use are an essential prerequisite. Therefore, to promote consistent condom use, we need to favourably modify intention/attitude towards condom use by intensive interpersonal and behaviour change communication, which should be culturally appropriate and in line with the education level of the workers. The Government of India has been implementing HIV prevention and supportive measures through Targeted Intervention (TI) strategy for Migrants. These interventions can be utilised for further strengthening condom use intention and practice through TI projects. Although, these activities should be directed to all beneficiaries, priority attention should be accorded to men who are more mobile, who have lower HIV/AIDS knowledge

and who use condom inconsistently. Peer group educators can be trained via media to reach out to those men who are illiterate and respond poorly to regular channels of communication. This integrated approach may in the long run provide the much-needed success to promotion of condoms as a strategy for HIV/AIDS prevention and control programme in India.

## REFERENCES

- [1] Cornman DH, Schmiege SJ, Bryan A, Benziger TJ, Fisher JD. An information-motivation-behavioral skills (IMB) model-based HIV prevention intervention for truck drivers in India. *Soc Sci Med.* 2007;64:1572–84.
- [2] Leighton A, Irudayasamy U, Shyamprasad S, Shyamprasad K, Leighton AA, et al. Risk perception among industrial workers in Tamilnadu, India. The XV International AIDS Conference: Abstract no. C10610.
- [3] Sherman SG, Celentano DA, Mcgrath JW, Chard SE, Gangakhedkar RR, Joglekar N, et al. The reliability and validity of the Modified Condom Outcome Expectancy Scale (MCOES) among an international sample of HIV-negative partners of people living with HIV/AIDS. *AIDS Care.* 2003;15:359–66.
- [4] Brown I. Development of a scale to measure attitude toward the condom as a method of birth-control. *J Sex Res.* 1984;20:255–63.
- [5] Helweg-Larsen M, Collins B. The UCLA Multidimensional Condom Attitudes Scale: Documenting the complex determinants of condom use in college students. *Health Psychol.* 1994;13:224–37.
- [6] Sunmola AM. Developing a scale for measuring the barriers to condom use in Nigeria. *Bull. World Health Organ.* 2001;79:926–32.
- [7] Sacco W, Levine B, Reed D, Thompson K. Attitudes about condom use as an AIDS-relevant behavior: Their factor structure and relation to condom use. *Psychol Assess.* 1991;3:265–72.
- [8] St. Lawrence J, Reitman D, Jefferson K, Alleyne E, Brasfield T, Shirley A. Factor structure and validation of an adolescent version of the Condom Attitude Scale: An instrument for measuring adolescents' attitudes toward condoms. *Psychol Assess.* 1994;6:352–59.
- [9] National Institute of Health and Family Welfare,, National AIDS Control Organisation, Ministry of Health & Family Welfare. Annual HIV sentinel surveillance, country report, 2008-2009. New Delhi; 2011.
- [10] Talukdar A, Bal R, Sanyal D, Rou K, Talukdar PS. Development of a scale for attitude toward condom use for migrant workers in India. *Indian J Med Sci.* 2008;62:55–61.
- [11] Deb AK, Deb M, Saha MK, Chakraborty S, Bhattacharya SK, Detels R. HIV transmission potential among local and migrant factory workers in Kolkata, India. *AIDS Behav.* 2009;13:928–38.
- [12] Organista KC, Balls Organista P, García de Alba JE, Castillo Morán MA, Ureta Carrillo LE. Survey of condom-related beliefs, behaviors, and perceived social norms in Mexican migrant laborers. *J Community Health.* 1997;22:185–98.
- [13] Ankamah A. Condom use in sexual exchange relationships among young single adults in Ghana. *AIDS Educ Prev.* 1998;10:303–16.
- [14] Wood C, Foster D. Gender differentiated reasons for non-use of condoms by sexually active heterosexual students. *Psychol Soc.* 1995;20:13–35.
- [15] World Health Organization. Effectiveness of male latex condoms in protecting against pregnancy and sexually transmitted infections. Fact Sheet No. 243 [Internet]. Geneva; 2000. Available from: <http://www.who.int/mediacentre/factsheets/fs243/en/>.
- [16] Centers for Disease Control and Prevention. Male latex condoms and sexually transmitted diseases. Fact Sheet for Public Health Personnel. [Internet]. Atlanta, GA; Available from: [www.cdc.gov/nchstp/od/condoms.pdf](http://www.cdc.gov/nchstp/od/condoms.pdf).
- [17] Ubaidullah M. Social vaccine for HIV prevention: a study on truck drivers in South India. *Soc Work Health Care.* 2004;39:399–414.
- [18] National AIDS Control Organisation, Ministry of Health & Family Welfare, Government of India. National Baseline General Population Behavior Surveillance Survey, India, 2001. New Delhi; 2001.
- [19] Dandona L, Dandona R, Gutierrez JP, Kumar GA, McPherson S, Bertozzi SM. Sex behaviour of men who have sex with men and risk of HIV in Andhra Pradesh, India. *AIDS.* 2005;19:611–19.
- [20] Kumar A, Mehra M, Badhan SK, Gulati N. Heterosexual behaviour and condom usage in an urban population of Delhi, India. *AIDS Care.* 1997;9:311–18.

### PARTICULARS OF CONTRIBUTORS:

1. Junior Resident, Department of Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi, India.
2. Professor, Department of Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi, India.
3. Professor, Department of Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi, India.
4. Additional Professor, Department of Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi, India.
5. Additional Professor, Department of Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi, India.

### NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Rizwan S A,  
Centre for Community Medicine, Old OT Block, Ground Floor, AllIMS, New Delhi – 110029, India.  
Phone : 084447284098, E-mail : sarizwan1986@gmail

FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Dec 22, 2013**  
Date of Peer Review: **Apr 18, 2014**  
Date of Acceptance: **May 26, 2014**  
Date of Publishing: **Aug 20, 2014**