

Original Article

## Barriers, facilitators and socio-demographic characteristics associated with condom usage amongst male HIV Integrated Counselling and Testing Centre attendees at the Government Hospital of Thoracic Medicine, an HIV tertiary care centre in Chennai

Mahajan D<sup>1</sup>, Ottilingam KR<sup>2</sup>, Gurusamy M<sup>3</sup>, Chokkalingam C<sup>4</sup>

<sup>1,2,4</sup>Government Hospital of Thoracic Medicine (GHTM), <sup>3</sup>Senior Medical Advisor, International Training and Education Centre for Health (I-TECH), Chennai, Tamil Nadu, India.

### Abstract

**Background:** HIV is transmitted largely through sexual route which can be prevented by using condoms. The objectives of this study were to describe condom usage with various barriers, facilitators and to determine association between different socioeconomic characteristics among male Integrated Counselling and Testing Centre (ICTC) attendees.

**Methods:** This is a hospital based cross sectional study (n=300). Clients (18-45years) attending ICTC for first time, between June-October 2010, were interviewed with structured questionnaire after obtaining informed consent. Description of demographic characteristics of respondents; univariate, multivariate logistic regression analyses were performed for estimation of association.

**Results:** Among respondents, awareness of HIV and condom were 80% and 85.3% respectively; Knowledge of prevention from STI/HIV (97.7%) was most common facilitator while forgetfulness after drinking alcohol (64.1%) was most common barrier to use condom; Respondents who had education up to secondary or above level were more associated with condom usage (AOR 2.9,95%CI1.34-6.24, after adjusting for income) compared to non educated respondents; considering less than Indian rupee (INR) 3000 per month as reference category, there were association of condom usage among relatively higher income groups between INR.3000 to 5000 per month (AOR 2.6, 95%CI 1.38-5.0, adjusting education) and income above INR5000 per month (AOR 2.85,95%CI1.37-5.9, adjusting education).

**Conclusions:** Condom usage was independently associated with education and income level of respondents. Forgetfulness after drinking alcohol was main barrier; knowledge of prevention from HIV was main facilitator of condom usage. Dissemination of knowledge regarding facilitator of condom usage and implementation of Rapid Needs Assessment Tool for Condom Programming can encourage condom use.

**Key words:** Integrated Counselling and Testing Centre (ICTC), Condom, Barrier, Facilitator, Knowledge of prevention, Rapid Needs Assessment Tool.

### Introduction:

An estimated 34 million people (31.6 million – 35.2 million) were living with HIV worldwide by 2010<sup>1</sup>. During the previous year, there were approximately 2.6 million new HIV infections<sup>2</sup>.

In India, there were 2.4 million people living with HIV in 2010. The HIV prevalence rate among 15 to 49 year olds was 0.3 percent<sup>2</sup>. In 2007, Tamil Nadu was one among the six high HIV prevalence states in India. HIV prevalence rates among female sex workers was 4.68%, men who have sex with men was 6.6% and injecting drug users was 16.8%. These rates were much higher than the national HIV prevalence rates in these populations (4.9%, 7.3%, and 9.2% respectively).

The HIV epidemic in India is largely driven by sexual transmission. Condoms use can reduce the risk transmission of sexually transmitted infections, including HIV, in more than 90% of cases<sup>2</sup>. Evidence suggests that the use of condom by men during every instance of sexual intercourse provides excellent protection against HIV transmission<sup>3</sup>.

After piloting rapid needs assessment tool in four countries Bangladesh, Brazil, Ghana, and Kenya, reports concluded that while condoms are widely available, and condom use is generally increasing, there is much that could be done to improve their distribution, their promotion, and their utilization, especially among key target groups that are at a high risk for HIV<sup>4</sup>. Despite

### Address for Correspondence:

Dhruba Mahajan, National Institute of Epidemiology (ICMR), 2nd Main Road, TNHB, Ayapakkam, Chennai- 600077.  
Email: dhrubamahajan@gmail.com

the prevention programs targeting condom promotion, social marketing, increased condom distribution outlets and raising awareness, the acceptability of condoms among Indian urban men is low<sup>5</sup>. The National Behaviour Surveillance Survey (BSS) 2006 on youth described the behaviour pattern of men and women related to condom usage. A significantly higher proportion of respondents from urban areas (89%) reported awareness of this issue as compared to respondents from rural areas (81%)<sup>6</sup>. The proportion of condom use during last sex with a non regular partner was higher among the respondents from urban areas (75%), as compared to rural areas (55%)<sup>6</sup>. The 2009 BSS study (BSS, 2009 wave xii, urban) among the urban population in Tamil Nadu showed that condom use with a regular partner continued to remain low at 5%<sup>7</sup>. At the same time, negative attitudes about condom use persist. For example, sexually experienced young men report that condoms reduce physical pleasure, they are embarrassed to purchase condoms and perceive condom use as an indication of infidelity<sup>8</sup> and HIV/STD seropositive status<sup>9</sup>. Other barriers include multiple condom insertion errors<sup>8</sup>, cost<sup>10</sup>, condom unavailability<sup>11</sup>, abusive relationship<sup>12</sup>, domestic violence<sup>13</sup> and adherence to traditional gender role<sup>11</sup>. Other factors that have been identified as perceived barriers to condom use include, drug and alcohol use before or during sexual activity<sup>10</sup>. Though male condom use has been primary component of sex education in the past years in the community, disappointing gains have been made in increasing widespread usage of condoms. Only a few studies examine the reason for low condom use in India. Furthermore, programmatic efforts to make condom usage popular in Tamil Nadu could be strengthened. For Understanding the barriers, facilitators, and socio-demographic factors associated with condom use could improve HIV prevention program planning and implementation. The objectives of this study were to describe condom usage with various perceived barriers and facilitators as well as determine the association between different socioeconomic characteristics among male Integrated Counselling and Testing Centre (ICTC) attendees.

### Subjects and Methods:

An analytical cross sectional study was performed on male clients attending the ICTC for the first time at the hospital in Chennai from June to October, 2010. This hospital is recognized as a tertiary HIV care and treatment hospital. A sample size of 299 was calculated assuming target population 4000 with alpha error 5%

and 30% condom use rate in sex acts other than female sex workers (FSW). Three hundred male clients fulfilling the inclusion criteria were interviewed by the primary investigator and trained HIV counsellors. One structured pre-coded questionnaire capturing details on demography, knowledge on sexually transmitted infections (STI)/HIV, condom use, and attitudes towards safer sex practices was administered after verbal and written informed consent was obtained. Female and transgender clients, physically weak patients were excluded from the study. The data collection procedure was standardized by pilot testing the questionnaire, training counsellors, and cross verifying of data previously collected data obtained by the trained counsellors. The study was approved by Institutional Review Board of the hospital.

### Analysis:

The socio-demographic characteristics of the study population were described. A univariate and multivariate logistic regression analysis of various socioeconomic characteristics were conducted to determine the odds ratio for estimating risk of non usage of condom in Epi-info software (3.5.3). Yates-corrected two-tailed *p* values <0.05 were considered statistically significant.

### Results:

Demographic details of 300 respondents are summarized in Table 1. Results showed, 146 (48.7%) clients were 36 to 45 years old, 216 (72%) were married (either first time married or remarried); 94 (31.3%) were illiterate, 48 (16%) had education up to primary (5<sup>th</sup>) level, 62 (20.7%) up to middle (8<sup>th</sup>) level and 96 (32%) up to secondary or above level; 123 (41%) were from monthly income group of below Indian rupee (INR) 3000; 112 (37.3%) were between INR.3000 to 5000 and 65 (21.7%) had income above INR.5000. Of the 300 respondents, 80% (n=240) had heard about HIV and 85% (n=256) were aware of condoms.

**Table 1: Demographic characteristics, level of education, income, awareness of condom and HIV of the participants**

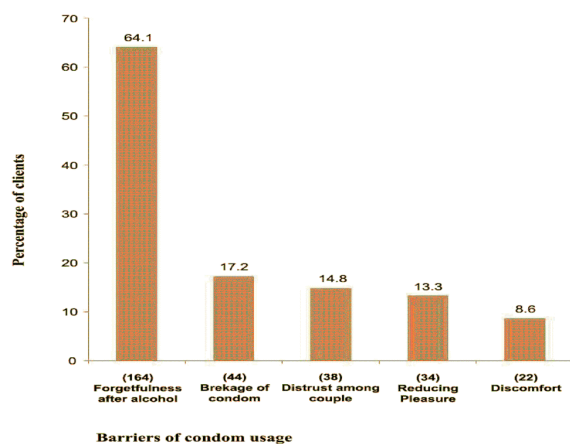
Characteristics	Frequency	%	95% CI
<b>Age group (Years)</b>			
18-25	36	12	8.5 – 16.2
26-35	118	39.3	33.8-45.1
36-45	146	48.7	42.9-54.5
<b>Currently living with wife (married , remarried)</b>	216	72	66.6-77.0
<b>Education</b>			
No education	94	31.3	26.1-36.9
Up to Primary (5 <sup>th</sup> ) level	48	16	12-20.6
Up to Middle (8 <sup>th</sup> ) level	62	20.7	16.2-25.7
Secondary and above	96	32	26.8-37.6
<b>Monthly Income in INR †</b>			
INR <3000	123	41	35.4-46.8
INR 3000-5000	112	37.3	31.8-43.1
INR >5000	65	21.7	17.1-26.8
<b>Awareness of condom</b>	256	85.3	80.8-89.1
Awareness of HIV	240	80	75-84.4

† Indian Rupee (INR)

Reported barriers for condom use amongst 256 clients who knew about condoms are shown in Figure 1. Results showed 164 (64.1%) clients forgot to use condoms after an alcoholic drink, 44 (17.2%) reported breakage of condom easily, 38 (14.8%) mentioned

condom use would cause distrust among the couples, 34 (13.3%) told about reduction of pleasure while using condom and 22 (8.6%) complained of discomfort while using condoms.

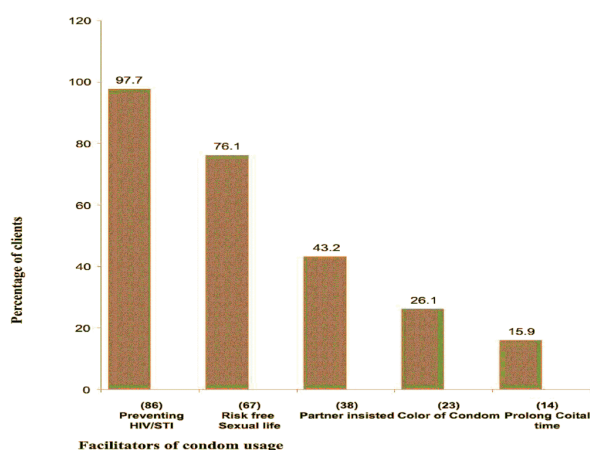
**Figure 1.** Barriers for condom use among clients aware of condoms (N=256)<sup>a</sup>



a= Multiple responses were included in analysis

Reported facilitators for condom use amongst 256 clients who knew about condoms are shown in Figure 2. Results showed 88 (34.4%) clients had used a condom at least once, 86 respondents (97.7%) used a condom to protect them from STI/HIV, 67 (76.1%) said that they used condoms to enjoy risk free sexual life, 38 (43.2%) used condoms as their partner insisted its use, 23(26.1%) reported condom colour influenced them to use condoms and 14 (15.9%) reported condom use because it extended coital time.

**Figure 2:** Facilitators of condom usage among clients who have used condom at least once (N=88)<sup>a</sup>



a = Multiple responses were included in analysis

The association of condom usage with education and income level was examined by chi-square. These results are summarized in Table 2. Condom use was significantly associated with increased level of education (p= 0.0062). Reported condom use at least once in those who were educated up to secondary or above level was 46.7% compared to 20% in those with no education. Similarly, reported condom use was significantly associated with increased monthly income (p = 0.0004). Reported condom use at least once in those with a monthly income above INR.5000 was 48.3% compared to 20.4% for those earning less than INR.3000 a month.

**Table 2:** Association of condom usage with education and income level of respondents

Determinants	Condom used		Condom not used		Chi- square p-value
Level of Education	(N)	(%)	(N)	(%)	
No education	13	20	52	80	0.0062*
Up to primary(5th) level	13	32.5	27	67.5	
Up to Middle (8th) level	19	32.2	40	67.8	
≥ Secondary level	43	46.7	49	53.3	
Monthly income					0.0004*
<INR.3000	21	20.4	82	79.6	
INR.3000-5000	39	41.1	56	58.9	
>INR. 5000 per month	28	48.3	30	51.7	
*p ≥ 0.05					

The influence of education and income on condom use is shown in Table 3. This is showing the usage and non usage of condom in relation to the various social determinants like various level of education and income with unadjusted odds ratio (OR) and adjusted Odds ratios (AOR). Considering no education as a reference category (RC), condom usage is 3.5 times (95% CI 1.7-7.3) likely to be higher among those who had education up to secondary or above level. After adjusting for income, the adjusted odds ratio for the same group

was 2.9 (95% CI 1.34-6.24). After considering less than INR 3000 per month as reference category, relatively higher income group, income group between INR 3000 to 5000 per month 2.7 (95% CI 1.45-5.1) times and income above INR 5000 per month group 3.6 (95% CI 1.8-7.3) times more likely to use condom. After adjusting education, INR 3000 to 5000 per month income group had AOR 2.6 (95% CI 1.38-5.0) and above INR 5000 per month had AOR 2.85 (95% CI 1.37-5.9).

**Table 3:** Influence of education and income on condom use

	Condom Use					
	OR	95% C I	P-value	AOR**	95% CI	P-value
Education Level						
No Education(RC***)	1	-----	-----	1	-----	-----
Primary level(5th)	1.9	0.78-4.72	0.153	1.8	0.72-4.53	0.2059
Middle level (8th)	1.9	0.84-4.3	0.124	1.64	0.71-3.8	0.2415
Secondary and above	3.5	1.7-7.3	0.0008	2.9	1.34-6.24	0.0065
Income						
<INR.3000 pm (RC**)	1	-----	-----	1	-----	-----
INR.3000-5000 pm	2.7	1.45-5.1	0.0019	2.6	1.38-5.0	0.0031
>INR.5000 pm	3.6	1.8-7.3	0.0003	2.85	1.37-5.9	0.0048

\*\*Adjusted Odds Ratio after adjusting for Education and Income

\*\*\*Reference Category

### Discussion:

This study examined barriers, facilitators and socio-demographic characteristics associated with condom use in male clients attending an ICTC at a tertiary care centre in southern India. Results from 300 interviews revealed that near half of the clients were between 36-45 years age group and near three fourth of the clients were married and two third of them were literate. More than 85 percent were aware of condom, but only less than one-third had used condoms at least once till the time of interview. Most respondents reported knowledge of HIV transmission and its prevention as the motivating factor for using condoms while consumption of alcohol prior to sex was a limiting factor for using condoms.

Reported use of a condom at least once was significantly associated with level of education and monthly income.

The similar types of results of low condom usage were also reported by a study from Karnataka, India. It showed that condom use with regular partners is only one third (32%) at last sex<sup>14</sup>. In another study from Thailand showed that 39.5% were using condoms consistently, 23% reported using condoms inconsistently, and 37.5% reported never using condoms among Thai heterosexual adult males in Bangkok<sup>15</sup>. But this usage is associated with the education and income level. Respondents with higher education and income are more likely to use condom than the lower

education and income level. One study from Pune, mentioned that high school or more education is one of the predictors of consistent condom use with other partners<sup>16</sup>. Another study from Sub-Saharan Africa showed condom use was associated with higher educational level of the male partner in Yaoundé and Ndola<sup>17</sup>. There are studies showing relation between condom usage and income status, studies from US cities showed that a large proportion of adult women living in low-income public housing developments in the three cities were at risk for contracting HIV infection, chiefly because of relationships with multiple male sexual partners and low rates of consistent condom use<sup>18</sup>.

In this study, who were aware of condom almost two third of them responded that alcohol use is the limiting factor for usage of condom. Few of them told breakage of condom, distrust among the couple, pleasure reduction during coitus can reduce condom usage. One study from South India reported that drinking of alcohol often increased male aggression and reduced condom use<sup>19</sup>. One American study also reported similar about the first cause; men who used drugs or alcohol at last intercourse and whose partners did not want to use condoms were less likely to have used them<sup>20</sup>.

Here those who used condom at least once, most (98%) of them knew that condom is giving protection from STI/HIV. Various studies from India and Vietnam are showing similar results. One study almost one decade ago from south India showed 43% used condom to protect themselves from disease, 20% used them to protect themselves from AIDS<sup>21</sup>. It shows the increased awareness about the role of condom in prevention of HIV/AIDS over the years from 2001 to 2010. Another Indian study in 2006 showed personal responsibility to protect the health of the partner, desire to prevent acquisition or transmission of STI<sup>22</sup> as the reason for condom use. Study from Vietnam illustrated that knowledge regarding condom use can prevent HIV also strongly predicts consistent use<sup>23</sup>.

#### Limitations:

This was a hospital based study conducted only among male clients. Those who stepped into the hospital were interviewed; hence conclusions are restricted by health seeking behaviour of the respondents. As the hospital is a tertiary care hospital, there is a possibility of information bias related to behaviours and awareness. Careful probing was conducted during data collection interviews to overcome information bias in this study.

#### Conclusions:

Condom usage was independently associated with education and income level of respondents. Forgetfulness after drinking alcohol considered as the main barrier; knowledge of preventing themselves from HIV was main facilitator of condom usage. Dissemination of these results through health educator and counsellor can remove the barriers and can encourage more usage of condom. Implementation of Rapid Needs Assessment Tool for Condom Programming, proposed by World Health Organization, can improve the situation.

#### References:

1. UNAIDS. World AIDS Day Report Geneva 2011. Report No.: ISBN 978-92-9173-904-2. (Cited 2012 Aug 21) Available from: [http://issuu.com/unaid/docs/worldaidsday\\_report\\_2011](http://issuu.com/unaid/docs/worldaidsday_report_2011).
2. UNAIDS. Global Report:UNAIDS Report on the Global AIDS Epidemic. Geneva 2010. Report No.: ISBN 978-92-9173-871-7. (Cited 2012 Aug 21) Available from: [http://www.unaids.org/en/media/unaid/contentassets/documents/unaidpublication/2010/20101123\\_globalreport\\_en.pdf](http://www.unaids.org/en/media/unaid/contentassets/documents/unaidpublication/2010/20101123_globalreport_en.pdf).
3. de Vincenzi I. A longitudinal study of human immunodeficiency virus transmission by heterosexual partners. European Study Group on Heterosexual Transmission of HIV. *N Engl J Med.* 1994; **331**(6): 341-6. Cited in Pubmed; PMID: 8028613. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/8028613>.
4. UNFPA PC. Rapid Needs Assessment Tool for Condom Programming 2003. (Cited 2012 Aug 23) Available from: [http://www.unfpa.org/upload/lib\\_pub\\_file/260\\_filename\\_CONDOM\\_RNAT.pdf](http://www.unfpa.org/upload/lib_pub_file/260_filename_CONDOM_RNAT.pdf).
5. Hounton SH, Carabin H, Henderson NJ. Towards an understanding of barriers to condom use in rural Benin using the Health Belief Model: a cross sectional survey. *BMC Public Health.* 2005; **5**: 8. Cited in Pubmed; PMID: 15663784. Available from : <http://www.ncbi.nlm.nih.gov/pubmed/15663784>.
6. NACO. National Behavioural Surveillance Survey (BSS). New Delhi: National Institute of Medical Statistics (Indian Council of Medical Research), National AIDS Control Organization 2006. (Cited 2012 Aug 22) Available from: [http://www.nacoonline.org/upload/M&E%20Resources/Youth\\_report.pdf](http://www.nacoonline.org/upload/M&E%20Resources/Youth_report.pdf).
7. APAC-VHS. HIV risk behavior surveillance survey in Tamil Nadu-2009(Wave XII). Chennai: APAC-VHS; 2009. (Cited 2012 Aug 23) Available from: [http://www.apacvhs.org/pdf/HIVRiskBehaviour\\_Surveillance\\_Survey.pdf](http://www.apacvhs.org/pdf/HIVRiskBehaviour_Surveillance_Survey.pdf).

8. Crosby R, DiClemente RJ, Wingood GM, Sionean C, Cobb BK, Harrington K, et al. Correct condom application among African-American adolescent females: the relationship to perceived self-efficacy and the association to confirmed STDs. *J Adolesc Health*. 2001; **29**(3): 194-9. Cited in Pubmed; PMID: 11524218. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/11524218>.
9. Maharaj P. Obstacles to negotiating dual protection: perspectives of men and women. *Afr J Reprod Health*. 2001; **5**(3): 150-61. Cited in Pubmed; PMID: 12471938. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/12471938>.
10. Cohen D, Scribner R, Bedimo R, Farley TA. Cost as a barrier to condom use: the evidence for condom subsidies in the United States. *Am J Public Health*. 1999; **89**(4): 567-8. Cited in Pubmed; PMID: PMC1508904. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1508904>.
11. Blake SM, Ledsky R, Goodenow C, Sawyer R, Lohrmann D, Windsor R. Condom availability programs in Massachusetts high schools: relationships with condom use and sexual behavior. *Am J Public Health*. 2003; **93**(6): 955-62. Cited in Pubmed; PMID: 12773362. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/12773362>.
12. Wingood GM, DiClemente RJ. The effects of an abusive primary partner on the condom use and sexual negotiation practices of African-American women. *Am J Public Health*. 1997; **87**(6): 1016-8. Cited in Pubmed; PMID: PMC1380941. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1380941/>.
13. Robertson AA, Stein JA, Baird-Thomas C. Gender differences in the prediction of condom use among incarcerated juvenile offenders: testing the Information-Motivation-Behavior Skills (IMB) model. *J Adolesc Health*. 2006; **38**(1): 18-25. Cited in Pubmed; PMID: 16387244. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/16387244>.
14. Ramesh B, Beattie TSH, Shajy I, Washington R, Jagannathan L, Reza-Paul S, et al. Changes in risk behaviours and prevalence of sexually transmitted infections following HIV preventive interventions among female sex workers in five districts in Karnataka state, south India. *Sexually transmitted infections*. 2010; **86**(Suppl 1): i17-i24. Cited in Pubmed; PMID: PMC3287557. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3287557/>.
15. Janepanish P, Dancy BL, Park C. Consistent condom use among Thai heterosexual adult males in Bangkok, Thailand. *AIDS Care*. 2011; **23**(4): 460-6. Cited in Pubmed; PMID: 21271399. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21271399>.
16. Bentley ME, Spratt K, Shepherd ME, Gangakhedkar RR, Thilikavathi S, Bollinger RC, et al. HIV testing and counseling among men attending sexually transmitted disease clinics in Pune, India: changes in condom use and sexual behavior over time. *Aids*. 1998; **12**(14): 1869. Cited in Pubmed PMID: 9792388. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9792388>.
17. Lagarde E, Caraël M, Glynn JR, Kanhonou L, Abega SC, Kahindo M, et al. Educational level is associated with condom use within non-spousal partnerships in four cities of sub-Saharan Africa. *Aids*. 2001; **15**(11): 1399. Cited in Pubmed; PMID: 9792388. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9792388>.
18. Sikkema KJ, Heckman TG, Kelly JA, Anderson ES, Winett RA, Solomon LJ, et al. HIV risk behaviors among women living in low-income, inner-city housing developments. *American journal of public health*. 1996; **86**(8): 1123-8. Cited at PMID: PMC1380624. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1380624>.
19. Rodriguez DC, Krishnan AK, Kumarasamy N, Krishnan G, Solomon D, Johnson S, et al. Two sides of the same story: alcohol use and HIV risk taking in South India. *AIDS and behavior*. 2010; **14** Suppl 1: S136-46. Cited in Pubmed; PMID: 20544382. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20544382>.
20. Weinstock HS, Lindan C, Bolan G, Kegeles SM, Hearst N. Factors associated with condom use in a high-risk heterosexual population. *Sex Transm Dis*. 1993; **20**(1): 14-20. Cited in Pubmed; PMID: 8430354. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/8430354>.
21. Thomas BE, Rehman F, Malaisamy M, Dilip M, Suhadev M, Priyadarsini P, et al. A study of condom acceptability among men in an urban population in South India. *AIDS Behav*. 2004; **8**(2): 215-20. Cited in Pubmed; PMID: 15187483. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/15187483>.
22. Chakrapani V, Newman PA, Shunmugam M, Dubrow R. Prevalence and contexts of inconsistent condom use among heterosexual men and women living with HIV in India: implications for prevention. *AIDS patient care and STDs*. 2010; **24**(1): 49-58. Cited in Pubmed; PMID: 20095889. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20095889>.
23. Do M, Fu H. Is women's self-efficacy in negotiating sexual decisionmaking associated with condom use in marital relationships in Vietnam? *Stud Fam Plann*. 2011; **42**(4): 273-82. Cited in Pubmed; PMID: 22292246. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22292246>.