

## Does Education Leads to Contraceptive Use?

### A Study of Sexually Experienced Unmarried Men in India

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#### Abstract

The consequences of pre-marital sex have been the subject of common concern for the public health professionals and policy makers. In India, despite strict societal sanctions, the prevalence of pre-marital sex has been repeatedly documented across literatures. It is believed that existing education system could afford the responsibility to develop protective sexual behavior among unmarried youths. Using National Family Health Survey (2005-06) data, this study examines the effect of education on contraceptive and condom use among sexually experienced unmarried men. Results indicate that education has a positive effect on contraceptive as well as condom use. However the interaction effect of education and awareness on contraceptive and condom use provides the key explanations for safe sexual practices. The findings could help policy makers to focus on both education and awareness which might lead to improvement in safe sexual practices in India where introducing sex education is still a controversial issue.

**Keywords:** Education, awareness, unmarried men, contraceptive and condom use, India

#### 1. Introduction

The socioeconomic and health implication of pre-marital sex remains the subject of common concern and discussion among researchers and policy makers (Ganguli, 1998). Several studies from developing countries have reported about premarital sexual relationship among young unmarried men and women (Guiella & Madise, 2007; Gage, 1998; Jeeboy, 1998). Due to the risky sexual encounters, illegal and unsafe abortions are prevalent on staging scale in developing countries (Savara & Sridhar, 1992). Moreover, the spread of Reproductive Tract Infections (RTI), Sexually Transmitted Infections (STIs), Sexually Transmitted Diseases (STDs), and the imminent threat of HIV/AIDS epidemic in recent years have increased the consequences of premarital sex in the developing countries (Potdar & Koenig, 2005). Traditionally, due to prevailing family and societal value system Indian men and women are not expected to have sexual relationship until marriage. However, despite strict societal sanctions pre-marital sex has reported in several studies (IIPS & Population Council, 2009; Alexander et al., 2007; Brahme et al., 2005; Collumbien et al., 2002; Singh et al., 1998).

The increase in pre-marital sexual activities in India could be an outcome of several socio-behavioral changes in last few years. The average age at marriage for both men and women has been rising by one year per decade (IIPS, 2006), which widened the period between age of sexual maturity and marriage. Additionally, exposure towards western culture, mass media such as movies and literature has increased the commercial information about sex (Khanna & Kapoor, 2004). Studies also highlighted peer-related pressures as the important factor which could leads to change in sexual behavior among young women and men (Cicely et al., 2004). In this combined effect, young people could depart beyond the conservative behavior. In many developing countries including India, lack of contraceptive use, discontinuation and failure rates characterized the vast majority of sexual encounters among unmarried young people (Singh et al., 1998; Collumbien et al., 2001). Moreover, contraceptive use by unmarried young people is generally infrequent and irregular (Awasthi et al., 2000; Gupta, 2000; Abraham & Kumar, 1999; Amazigo et al., 1997).

As far as the role of education is concerned, the UNESCO in collaboration of UNAIDS launched EDUCAIDS, the Global Initiative on Education and HIV/AIDS in 2004 (UNESCO, 2005). It seeks to promote, develop and support comprehensive education sector responses to HIV/AIDS at global level. Additionally, education helps to develop communication skill, self-esteem, aspirations and knowledge about HIV/AIDS and other precautions which help to protect from risky sexual encounters (World Bank, 2002; Chilman, 1983). In India, introducing sex education in schools and colleges is a very sensitive subject and a topic not to be discussed openly (Sathe, 1994). Thus, it is generally believed that existing education system could afford the responsibility to develop a protective behavior towards risky sexual practices among unmarried young people. As the young people are an integral part of civil society; it justifies the importance to study the sexual behavior and contraceptive use, especially the possible impact of education, in order to preserve the productivity of the nation in a better way. Since, past studies in India particularly looked on pre-marital sexual activity and its correlates among specific groups they may not be generalized at national level. Therefore, the present study attempts to explore the contraceptive and condom use separately by using large scale nationally representative dataset and try to look at the possible impact of education among sexually experienced unmarried men in India.

## **2. Data and Methods**

### *2.1 Data*

The present study used data from the third round of National Family Health Survey (2005-06), covers various aspects of health across all states of India. The NFHS-3 is a large-scale, multi-round survey conducted in a representative sample of households throughout India. The third wave of NFHS has first time interviewed men across the country and among them 28,238 were reported as unmarried at the time of survey. This study included only those unmarried men who had experienced sexual intercourse in last four weeks preceding the survey date to avoid recall bias. Thus, the present study restricts to 3,291 unmarried men for whom information was available on selected study variables.

### *2.2 Variables description*

The dependent variables used in this paper are contraceptive use which includes; intra-uterine-device (IUD), pills, injections, sterilization, periodic abstinence, and withdrawal methods. However, condom use has also separately analyzed. This study has analyzed contraceptive use separately to examine the extent of use by either sexual partner at the time of last sexual intercourse which has ignored by several previous studies. The independent variables are education (no education, primary, secondary and higher) place of residence (rural and urban), religion (Hindu, Muslim and Others), Caste (Schedules Castes/ Scheduled Tribes, Other Backward Castes, General and Other/Don't know), wealth index (poorest, poorer, middle, richer and richest), household structure (nuclear and joint), mass media exposure (no and yes), know about HIV/AIDS (yes and no), aware about Sexual Transmitted Diseases (yes and no), know condom as a means to avoid AIDS (yes and no), work status (no and yes), age at first sexual intercourse (below 14, 15-19, 20-24, 25 and above), total lifetime number of sexual partner (1, 1-3, and 4+) and alcohol consumption (no and yes).

### *2.3 Analytical strategy*

Bivariate and multivariate analyses were performed to fulfill the study objectives. At first the gross differentials have examined to determine the use of contraceptive and condom among unmarried men at the time of last sexual encounter. It is worth mentioning, Chi-square test were performed to examine the difference in proportion in bivariate analyses. In order to observe the net effect, the study applied multivariate logistic regression analysis to explain the variation in the use of contraceptive and condom. Further, for each outcome variable, sets of different models were carried out to examine the unadjusted and adjusted effects of 'education' on aforementioned outcome variable.

## **3. Results**

### *3.1 Profile of the sample*

The utilisation rate of machines in a period of time,  $U_t$ , can be calculated as the total processing time,  $t_{pro}$ . Table 1 represents the weighted percentage distribution of unmarried men experienced sexual intercourse by selected background characteristics. Majority of unmarried men experienced sexual intercourse had completed secondary education level (63%). About 67% and 94% men have knew about HIV/AIDS and aware about STDs respectively. Nearly half of the sexually experienced men did not know condom use during sexual intercourse as a possible way to avoid HIV/AIDS. Majority of unmarried men lived in rural areas (61%) and belonged to Hindu religion (80%). About one third were from the Other Backward Caste and 23% belonged to richest wealth quintile. Nearly 57% belonged to joint family and 85% was working. Over half of the unmarried men experienced first sex in the age group 15-19 years and about 29% had 2-3 lifetime numbers of sexual partners. About 48% unmarried men have consumed alcohol.

**Table 1: Percentage distribution of sexually active unmarried men by selected background characteristics, India, NFHS-3 (2005-06)**

Selected variables	%	n	Selected variables	%	n
<b>Education</b>			<b>Wealth Index</b>		
No Education	10.7	351	Poorest	12.9	425
Primary	13.8	454	Poorer	18.8	619
Secondary	63.0	2074	Middle	20.9	688
Higher	12.5	412	Richer	24.0	790
<b>Knowledge about HIV/AIDS</b>			Richest	23.4	769
No	33.0	1081	<b>Household structure</b>		
Yes	67.0	2070	Nuclear	42.7	1342
<b>Aware about STDs</b>			Joint	57.3	1798
No	5.7	188	<b>Mass Media Exposure</b>		
Yes	94.3	3103	No	2.1	69
<b>Knowledge about condom use to avoid HIV/AIDS</b>			Any	97.9	3222
No	50.1	1650	<b>Work Status</b>		
Yes	49.9	1641	Not working	15.0	493
<b>Residence</b>			Working	85.0	1795
Rural	61.4	2020	<b>Age at first sexual intercourse</b>		
Urban	38.6	1271	below 14	11.0	363
<b>Religion</b>			15-19	52.7	1735
Hindu	80.1	2636	20-24	28.8	946
Muslim	11.5	377	25 above	7.5	246
Others	8.4	278	<b>Total lifetime number of sexual partners</b>		
<b>Caste</b>			1	57.4	1889
SC/ST	31.2	1027	2-3	28.5	938
OBC	34.1	1123	4+	14.1	464
General	32.2	1142	<b>Drink alcohol</b>		
			No	52.3	1720
			Yes	47.7	1571
			<b>Total number of respondents</b>		<b>3291</b>

### 3.2 Bivariate analysis

Contraceptive and condom use among sexually experienced unmarried men by background characteristics is presented in Table 2. Overall, 27% and 23% unmarried men have used contraceptive and condom at the time of last sexual intercourse respectively. The bivariate association suggests that contraceptive (34%) and condom (29%) use were more among higher educated men. Nearly, 31% and 26% men used contraceptive and condom respectively who knew about HIV/AIDS. The use of condom was 23% among unmarried men who were aware about STDs. Similarly, contraceptive (32%) and condom (27%) use were higher among unmarried men who knew condom use during sexual intercourse as a possible way to avoid HIV/AIDS respectively. The use of contraceptive and condom were more in urban unmarried men than the rural counterpart. Unmarried men belonged to other religion were 38% and 32% used contraceptive and condom respectively. Scheduled Castes/Scheduled Tribes men were reported more contraceptive (36%) and condom (31%) use then the other castes groups. The use of contraceptive and condom among unmarried men from poorest wealth quintile were 18% and 11% respectively. The use of contraceptive and condom among unmarried men were

increasing with the increase in the lifetime number of sexual partners. Unmarried men who consumed alcohol were reported lower contraceptive (23%) and condom use (19%).

**Table 2: Percentage of sexually active unmarried men using contraceptive and condom use at last sex by selected background characteristics, India, NFHS-3 (2005-06)**

Selected variables	Contraceptive use	Condom use	Selected variables	Contraceptive use	Condom use
<b>Education</b>	(38.86***)	(48.81***)	<b>Household structure</b>	ns	ns
No Education	17.4	12.2	Nuclear	27.0	22.7
Primary	21.4	15.3	Joint	27.3	22.6
Secondary	28.4	24.4	<b>Wealth Index</b>	(133.43***)	(173.59***)
Higher	34.2	29.1	Poorest	17.6	11.4
<b>Knowledge about HIV/AIDS</b>	(32.80***)	(30.83***)	Poorer	22.0	14.4
No	21.0	17.1	Middle	18.5	15.4
Yes	30.8	26.3	Richer	29.2	24.9
<b>Aware about STDs</b>	9.93***	20.63***	Richest	41.2	38.1
No	17.0	8.2	<b>Mass Media Exposure</b>	ns	ns
Yes	27.5	23.2	No	26.0	13.6
<b>Know condom during sexual intercourse use to avoid HIV/AIDS</b>	(34.63***)	(34.43***)	Yes	27.1	22.5
No	22.4	18.0	<b>Work Status</b>	ns	ns
Yes	32.0	26.8	Not working	27.8	23.4
<b>Residence</b>	(56.26***)	(88.43***)	Working	26.7	22.1
Rural	22.3	16.7	<b>Age at first sexual intercourse</b>	(36.65***)	(31.498***)
Urban	34.2	31.1	below 14	17.6	14.1
<b>Religion</b>	(22.61***)	(18.67***)	15-19	26.5	21.8
Hindu	25.3	20.9	20-24	32.7	27.8
Muslim	30.4	25.7	25 above	21.1	18.1
Others	37.8	31.9	<b>Total lifetime number of sexual partners</b>	(100.53***)	(88.93***)
<b>Caste</b>	(66.80***)	(71.26***)	1	21.7	18.0
SC/ST	35.6	31.3	2-3	28.9	23.1
OBC	23.6	19.0	4+	44.4	39.2
General	21.2	16.8	<b>Drink alcohol</b>	(22.12***)	(27.12***)
			No	30.7	26.4
			Yes	23.4	18.6
			<b>Total</b>	<b>26.9</b>	<b>22.3</b>

Note:  $\chi^2$  test applied for each variable; #significant at 0.01 level, \*significant at 0.05 level; ns: not significant; NA: Not applicable

### 3.3 Multivariate analysis

The bivariate analysis clearly suggests that along with education, other background characteristics have also an effect on contraceptive and condom use among unmarried men. To examine the adjusted effect of education on two outcome variables, multivariate analysis was carried out and the results are presented in Table 3.

Model 1 shows that the use of contraceptive was found to be more likely among secondary (OR=1.646) and higher (OR=1.780) educated men than the uneducated men ( $p < 0.01$ ). Similarly, the odds of using condom use was also more likely among secondary (OR=1.465;  $p < 0.01$ ) and higher (OR=1.621,  $p < 0.01$ ) educated men than the uneducated men (Model 4). Model 2 shows that, after including knowledge of HIV/AIDS along with education and other selected background characteristics, the likelihood of contraceptive use were found to be more among men who knew about HIV/AIDS than their counterpart (OR=1.796,  $p < 0.01$ ). However, education did not show any significant impact on contraceptive and condom use. Muslim religion were found to be significantly and negatively associated with the contraceptive use. Wealth quintile and age at first sexual intercourse was significantly and positively associated with the use of contraception among unmarried men. The impact of education reduces in model 3, where aware about STDs was included along with all variables used in model 2. The odds of using contraceptive was high among men who were aware about STDs (OR=1.858;  $p < 0.01$ ) than those men who did not aware about STDs. Again variables which showed

significant association with contraceptive use in model 2 were also found to be significantly associated in model 3.

**Table 3: Logistic regression (Odds ratio) for assessing the likelihood for use of contraceptive and condom by education and selected variables, India, NFHS-3 (2005-06)**

Selected Covariates	Contraceptive use			Condom use			
	Model-1 Exp ( $\beta$ )	Model-2 Exp ( $\beta$ )	Model-3 Exp ( $\beta$ )	Model-4 Exp ( $\beta$ )	Model-5 Exp ( $\beta$ )	Model-6 Exp ( $\beta$ )	Model-7 Exp ( $\beta$ )
<b>Education</b>							
No Education®							
Primary	1.172	0.943	1.075	0.953	0.782	0.847	0.77
Secondary	1.646**	1.257	1.419*	1.465**	1.131	1.291	1.107
Higher	1.780**	1.212	1.527*	1.621**	1.110	1.382	1.097
<b>Knowledge about HIV/AIDS</b>							
No®							
Yes		1.796***	1.520**		1.701***	1.621***	1.298*
<b>Aware about STDs</b>							
No®							
Yes			1.858***			1.747***	1.589*
<b>Know condom during sexual intercourse use to avoid HIV/AIDS</b>							
No®							
Yes			1.526**				1.420***
<b>Residence</b>							
Rural®							
Urban	1.228*	1.169	1.221	1.300**	1.251*	1.286**	1.240*
<b>Religion</b>							
Hindu®							
Muslim	0.608***	0.596***	0.599***	0.602**	0.583***	0.589***	0.492***
Others	1.017	1.083	1.009	0.985	1.038	1.023	1.04
<b>Caste</b>							
SC/ST®							
OBC	0.676***	0.708**	0.687**	0.987**	0.709**	0.704**	0.720***
General	0.668**	0.688**	0.682**	0.983**	0.709**	0.689**	0.711***
<b>Wealth Index</b>							
Poorest®							
Poorer	1.183	1.117	1.114	1.180	1.126	1.102	1.14
Middle	1.244	1.06	1.146	1.629*	1.418	1.482	1.449
Richer	2.007***	1.721**	1.832**	2.593***	2.282***	2.329***	2.320***
Richest	2.840***	2.561***	2.587***	3.847***	3.503***	3.463***	3.615***
<b>Household structure</b>							
Nuclear®							
Joint	0.927	0.934	0.944	0.888	0.902	0.9	0.907
<b>Mass Media Exposure</b>							
No®							
Yes	1.292	1.365	1.142	1.034	1.094	0.884	1.082
<b>Work Status</b>							
Not working®							
Working	1.05	1.068	1.053	1.023	1.045	1.023	1.06
<b>Age at first sexual intercourse</b>							
below 14®							
15-19	1.29	1.258	1.26	1.306	1.266	1.275	1.267
20-24	1.682**	1.587**	1.639**	1.672**	1.541*	1.642*	1.556**
25 above	1.353	1.368	1.32	1.304	1.286	1.277	1.27
<b>Total lifetime number of sexual partners</b>							
1®							
2-3	1.055	1.056	1.049	1.003	1.005	0.944	1.016

4+	1.351**	1.395**	1.316**	1.277	1.296*	1.247	1.301**
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Table 1 continued

<b>Drink alcohol</b>							
No®							
Yes	0.987	0.963	0.994	1.069	1.051	1.074	1.047
<b>-2 log likelihood</b>	<b>2326.957</b>	<b>2205.772</b>	<b>2114.629</b>	<b>2125.190</b>	<b>2029.406</b>	<b>2010.737</b>	<b>2004.491</b>

Note: Level of significance: \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$  ® Reference category

Model 1 and 4: Only education with other selected background variables and excluding knowledge variable.

Model 2 and 5: Education + knowledge about HIV/AIDS.

Model 3 and 6: Education + heard about STDs Model 4: Education + knowledge about condom as a means to avoid HIV/AIDS

Model 7: Education + know condom use during sexual intercourse as a way to avoid HIV/AIDS

No significant effect of education on condom use was evident when the knowledge about HIV/AIDS variable was included in model 5. The odds of condom use were more likely among men who knew about HIV/AIDS than their counterpart (OR=1.701;  $p < 0.01$ ). Muslim men were less likely to use condom than the men belonged to Hindu religion (OR=0.589;  $p < 0.01$ ). The odds of using contraceptive was higher among wealthier men compared with men belonged to poorest wealth quintile (OR=2.587;  $p < 0.01$ ). A similar association was observed in model 6 when aware about STDs was included along with other background variables. The odds of condom use was more likely among those men who have aware about STDs than those who did not aware (OR=1.747;  $p < 0.01$ ). However, the impact of education on condom use remains insignificant. Place of residence and wealth status found to be significant and positively associated with the condom use. The last model (Model 7), shows significant effect of two knowledge related variables (knowledge about HIV/AIDS and aware about STDs) along with the one additional variables namely, knew condom use during sexual intercourse as a possible way to avoid HIV/AIDS. The odds of condom use were found to be high among unmarried men who knew condom use during sexual intercourse as a possible means to avoid HIV/AIDS, than their counterpart (OR=1.420,  $p < 0.01$ ). Unmarried men belonged to Muslim religion; Other Backward Castes and General Castes found to be significantly and negatively associated with the condom use during last sex. However, wealth status, age at first sexual intercourse and number of lifetime sexual partner were positively associated with the use of condom among unmarried men.

### 3.4 Interaction effect analysis: multivariate technique

Results from multivariate analyses have shown mixed effect of education and awareness on contraceptive and condom use among men. Therefore, to understand the possible impact of educational on the use of contraceptive and condom, the interaction effect is customarily assessed in the analysis of variance using sums of square for the interaction terms in Table 5. In this paper, new variables representing combinations of education and other awareness variables like, aware about STDs, know about HIV/AIDS and know condom use during sexual intercourse as a possible mean to avoid HIV/AIDS have created. The other background variables remain similar in the multivariate analysis. It is worthwhile to mention that only one interaction could be examined at a time. Inclusion of two interaction variables in a single analysis brings in multi-collinearity effect.

The result from interaction effect demonstrated interesting observations regarding the combination of education and knowledge of HIV/AIDS on contraceptive and condom use by unmarried men (model 1 and 4, table 5). The use of contraceptive and condom were positively associated with the increase in education and knowledge about HIV/AIDS. The odds of using contraceptive and condom use were two, and one and half times more likely among higher educated men who knew about HIV/AIDS respectively, compared with men who were uneducated and did not aware of HIV/AIDS ( $p < 0.05$ ). Similarly, the interaction effect between education and aware about STDs has shown positive effect on contraceptive and condom use (model 2 and 5, table 5). The likelihood of using contraceptive (OR=6.214,  $p < 0.01$ ) and condom (OR=6.630,  $p < 0.01$ ) were higher among those men who have higher education and aware of STDs than to those who were uneducated and did not aware about STDs. Interestingly, the likelihood of using contraceptive and condom were found to be high even among those men who were uneducated but aware about STDs (OR=3.924;  $p < 0.01$ ), compared with men who were uneducated and did not aware about STDs. A strong interaction effect between education  $\times$

knowledge about condom use during sexual intercourse as a possible means to avoid HIV/AIDS on the use contraceptive and condom evident (Model 3 and 6, Table 5). The likelihood of using contraceptive and condom were found to be higher among unmarried men who knew condom use during sexual intercourse as a possible means to avoid HIV/AIDS, irrespective of their educational level than the uneducated men who did not knew condom as a possible means to avoid HIV/AIDS ( $p < 0.01$ ).

**Table 4: Logistic regression (Odds ratio) for the use of contraceptive and condom, India, NFHS-3 (2005-06): Assessment of the education and know any ways to avoid HIV/AIDS, heard about STDs and condom use as a means to avoid HIV/AIDS.**

Interaction variables	Contraceptive use			Condom use		
	Model-1 Exp ( $\beta$ )	Model-2 Exp ( $\beta$ )	Model-3 Exp ( $\beta$ )	Model-4 Exp ( $\beta$ )	Model-5 Exp ( $\beta$ )	Model-6 Exp ( $\beta$ )
<b>Education x Knowledge about HIV/AIDS</b>						
No Education-did not know about HIV/AIDS®	1.00			1.00		
No education-knew about HIV/AIDS	1.585			1.487		
Primary-did not know about HIV/AIDS	0.897			0.737		
Primary-knew about HIV/AIDS	1.581*			1.265*		
Secondary-did not know about HIV/AIDS	1.171**			1.042**		
Secondary-knew about HIV/AIDS	2.068**			1.774**		
Higher-did not know about HIV/AIDS	1.976**			1.773**		
Higher-knew about HIV/AIDS	2.041**			1.420**		
<b>Education x Aware about STDs</b>						
No education-do not aware about STDs®		1.00			1.00	
No education- aware about STDs		3.924**			4.835**	
Primary-do not aware about STDs		2.592			0.931	
Primary- aware about STDs		3.933**			4.027**	
Secondary-do not aware about STDs		1.437**			2.048**	
Secondary- aware about STDs		5.574**			6.153**	
Higher-do not aware about STDs		5.961**			6.598**	
Higher- aware about STDs		6.214**			6.630**	
<b>Education x Knew condom use during sexual intercourse as a means of avoid AIDS</b>						
No education-did not know condom use to avoid HIV/AIDS®			1.00			1.00
No education-knew condom use to avoid HIV/AIDS			3.844***			3.971***
Primary-did not know condom use to avoid HIV/AIDS			1.424			1.146
Primary-knew condom use to avoid HIV/AIDS			2.485**			1.995**
Secondary-did not know condom use to avoid HIV/AIDS			1.773**			1.719**
Secondary-knew condom use to avoid HIV/AIDS			3.125***			2.983***
Higher-did not know condom use to avoid HIV/AIDS			2.025***			1.929***
Higher-knew condom use to avoid HIV/AIDS			3.234***			2.904***
<b>-2 log likelihood</b>	<b>2205.32</b>	<b>2314.69</b>	<b>2288.38</b>	<b>2028.95</b>	<b>2052.32</b>	<b>2092.43</b>

Note: Level of significance: \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$  ® Reference category

Model 1 and 4: Education x Knowledge about HIV/AIDS; Model 2 and 5: Education x Heard about STDs.

Model 6: Education x Knowledge about condom use during sexual intercourse as a means to avoid HIV/AIDS

All the estimates adjusted by age, place of residence, mass media exposure, work status, household structure, religion, caste, wealth index, age at the first sexual intercourse, total lifetime number of sexual partner and alcohol consumption.

#### 4. Conclusion

The present study examines the association between education and contraceptive as well as condom use among unmarried men who have experienced last sexual intercourse in the four weeks preceding the survey date. The study has used data from the Indian National Family Health Survey (INFHS) conducted during 2005-06. The present study findings highlight the importance of education in delaying sexual initiation before marriage. This finding is consistent with other studies elsewhere documented late sexual initiation among educated young unmarried men compared to uneducated men (Alexander et al., 2007; Gupta, 2000). Previous studies acknowledged that education has a positive effect on contraceptive and condom use among unmarried men (Zambuko & Mturi, 2005), however the present study found that the extent of contraceptive and condom use among unmarried men varying by educational level. The three selected awareness indicators i.e., knowledge about HIV/AIDS, aware about STDs and knowledge about condom use during sexual intercourse as a possible means to avoid HIV/AIDS observed measurable effect on contraceptive and condom use among sexually experienced unmarried men. However, this finding is not consistent with other studies where they found

inconsistent relationship between knowledge about sexual related issues and safe sex practices (Abraham & Kumar, 1998; Marston et al., 2004).

In this study, first time interaction effect between two key variables (education and awareness), highlighted by several studies have incorporated. This provides some of the key explanations for safe sexual practices among unmarried men in India. The impact of higher education on contraceptive and condom use is evident. Even those higher educated men who did not know about HIV/AIDS, did not aware about STDs and did not know condom use during sexual intercourse as a possible means to avoid HIV/AIDS, the odds of using contraceptive and condom was significantly higher compared to uneducated men who did not know about all three awareness indicators. This could be because education helps to develop communication skill, self-identity, self-esteem and aspirations which protect young people from the risky sexual behavior (Chilman, 1983; Arowojolu et al., 2002). On the other hand finding shows that contraceptive and condom use were higher among uneducated men who were aware about STDs and condom use during sexual intercourse as a possible means to avoid HIV/AIDS compared to uneducated men who did not have the knowledge about STDs and condom use during sexual intercourse as a possible means to avoid HIV/AIDS. This confirms the notion that combination of information and awareness could increase the acceptance of safe sexual practices even among uneducated men.

In India where introducing sex education is still a controversial issue and increasing expectations from the existing education system to encourage safe sexual practices among young people is very high. The finding of this study could help policy makers and public health experts to focus on the combination of education  $\times$  awareness approach which may lead unmarried men more likely to adopt safe sexual practices. The present study takes an initial step towards bridging the evidence from three key components of research- education, awareness and pre-marital sexuality- and tried to explore possible impact of education and awareness combination which could be more acceptable way for achieving safe sexual practices among unmarried men particularly in the country with relatively traditional society like India.

## References

- Abraham, L. & Kumar, K.A. (1999). Sexual experiences and their correlates among college students in Mumbai City, India. *International Family Planning Perspective* 25(3), 139-146.
- Alexander, M. Garada, L.K., & Jejeebhoy, S. (2007). Correlates of premarital relationships among unmarried youth in Pune district, Maharashtra, India. *International Family Planning Perspectives* 33(4), 150-159.
- Amazigo, U. Silva, N. Kaufman, J. & Obikeze, D.S. (1997). Sexual activity and contraceptive knowledge and use among in-school adolescents in Nigeria. *International Family Planning Perspective* 23(1), 28-33.
- Arowojolu, A.O. Ilesanmi, A.O. Roberts, O.A. & Okunola, M.A. (2002). Sexuality, contraceptive choice and AIDS awareness among Nigerian undergraduates. *African Journal of Reproductive Health* 6(2), 60-70.
- Awasthi, S. Nichter, M. & Pande, V.K. (2000). Developing an interactive STD prevention programme for youth: Lessons from a north Indian slum. *Studies in Family Planning* 31(2), 130-150.
- Brahme, R.G. Sahay, S. Malhotra, K.R. Divekar, A.D. Gangakhedkar, R.R. Parkhe, A.P. Kharat, M.P. Risbud, A.R. Bollinger, R.C. Mehendale, S.M. & Paranjape, R.S. (2005). High-risk behaviour in young men attending sexually transmitted disease clinics in Pune India. *AIDS Care* 17(3), 377-385.
- Chilman, C.S. (1983). Adolescent sexuality in a changing American society: social and psychological perspectives for the human services professions. 2<sup>nd</sup> ed. New York, NY: John Wiley & Sons.
- Cicely, M. Fatima, J. & Jose, A.I. (2004). Young, Unmarried Men and Sex: Do friends and Partners Shape Risk Behavior? *Culture, Health and Sexuality* 6(5), 411-424.
- Collumbien, M. Das, B. & Bohidar, N. (2001). Male sexual debut in Orissa, India: context, partners and differentials. *Asia-Pacific Population Journal* 16(2), 211-224.



- Collumbien, M. Das, B. & Campbell, O.M.R. (2002). Why are Condoms Used and How Many are Needed? Estimates from Orissa, India. *International Family Planning Perspectives* 27(4), 171-177.
- Savara, M. & Sridhar, C.R. (1992). Sexual behaviour of urban, educated Indian men: results of a survey. *Journal of Family Planning* 38(1), 30-43.
- Gage, A.J. (1998). Sexual activity and contraceptive use: The components of the decision making process. *Studies in Family Planning* 29(2), 154-166.
- Ganguli, H. (1998). Behavior Research in Sexuality. Vikash Publication Pvt. Ltd. New Delhi.
- Guiella, G. & Madise, N.J. (2007). HIV/AIDS and sexual-risk behavior among adolescents: Factors influencing the use of condom in Burkina Faso. *Africa Journal of Reproductive Health* 11(3), 182-196.
- Gupta, N. (2000). Sexual initiation and contraceptive use among adolescent women in Northeast Brazil. *Studies in Family Planning* 31(3), 228-38.
- International Institute For Population Sciences and Population Council (2009). Youth in India: Situation and Needs Study, 2006-07. Mumbai, India.
- International Institute For Population Sciences (2006). National Family Health Survey (NFHS -3), 2005-06. India. Mumbai, India
- Jejeeboy, S.J. (1998). Adolescents sexual and reproductive behavior-A review of the evidences from India. *Social Science and Medicines* 46(10), 1275-1290.
- Khanna, G. & Kapoor, S. (2004). Secular trends in stature and age at menarche among Punjabi Aroras residing in New Delhi, India. *Collegium Anthropologicum* 28(2), 571-585.
- Marston, C. Juarez, F. & Izazola, J.A. (2004). Young, Unmarried Men and Sex: Do Friends and Partners Shape Risk Behavior? *Culture, Health & Sexuality* 6(5), 411-424.
- Potdar, R. & Koenig, M.A. (2005). Does Audio-CASI improve reports of risky behavior? Evidence from a randomized field trial among urban men in India. *Studies in Family Planning* 36(2), 107-116.
- Sathe, A.G. (1994). Introduction of sex education in schools: Perceptions of Indian society. *Journal of Family Welfare* 40(1), 30-37.
- Singh, K.K. Bloom, S.S. & Tsui, A.O. (1998). Husbands reproductive health knowledge, attitudes, and behavior in Uttar Pradesh, India. *Studies in Family Planning* 29(4), 388-399.
- UNESCO (2005). The global initiative on HIV/AIDS and education. [Online] Available: <http://unesdoc.unesco.org/images/0013/001398/139831e.pdf> (November 18, 2011)
- World Bank (2002). Youth for good governance learning program: A distance learning governance program for youth. [Online] Available: <http://www.worldbank.org/wbi/govenence/youth/youthgovbrochure.pdf> (November 26, 2011)
- Zambuko, O. & Mturi, A.J. (2005). Sexual Risk Behaviour among the Youth in the Era of HIV/AIDS in South Africa. *Journal of Biosocial Sciences* 37(5), 569-584.

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