

Pattern of Substance Abuse, Sexual Behavior and its Determinants among Unmarried Youth in India

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Abstract

This paper describes patterns of substance abuse, sexual behaviour and its determinants among unmarried youth in India and also evaluates how these patterns are associated with each others. Data come from the Youth in India: Situation and Needs Study, a sub-nationally representative survey conducted during 2006–2008. Logistic regression analysis (binary and multinomial) showed relationships between predictor variables and alcohol consumption and alcohol and sexual risk indicators as well as two of the sexual health indicators associated with premarital sex. Substance use was significantly high among the age group of 20-24 years. Factors such as substance use by caste/tribe, any member in family, paid work, and lower educational status were significantly associated with substance use by study subjects. The prevalence of substance use was high among male youths as compared to female youths. Male youth recognized more Premarital sexual behaviour than the female youth. Premarital sex were significantly higher among youths who had some disposable income in hand, i.e., those belonging the paid work or both paid and unpaid work. Youth is most important period of human life as they are easily influenced by habits and behaviours of their parents, siblings or peers and initiate substance use as well as premarital sex. Therefore improvement of educational and employment status of youths strongly needed. Youths and their parents urgently need health education regarding the consequences of substance use and unsafe pre marital sex.

Index terms— youth, substance use, alcohol, tobacco, sexual behaviour, sexual risk, sexual health.

1 Introduction and Reviews of Literature

Substance use is one of the most common causes of preventable human deaths worldwide. Alcohol and tobacco are most commonly used substances throughout the world. Alcohol and tobacco are the most commonly used substances in India also. Other substances that can be used are Ganja (Cannabis), Cocaine, Inhalants, Hallucinogens, Sedatives, Tranquilizers and intravenous drugs. Alcohol and tobacco are the substances commonly used as a part of socialization in some communities in India. Substance use is defined as, "Persistent or sporadic drug use inconsistent with or unrelated to acceptable medical practice" [1]. According to estimates of the World Health Organization, there are about 2 billion people worldwide consuming alcohol beverages and 76.3 million are diagnosed with alcohol related disorders in 1990. Globally alcohol consumption causes 3.2 % of overall human deaths [2]. Worldwide 5 % of all human deaths were in the age group of 5 to 29 attributed to alcohol use [3]. General population studies conducted in different parts of India suggest prevalence rates of use of alcoholic beverages ranging 23 % to 74 % among males. Women constitute over 90% of abstainers, though among tribal group there is substantial number of alcohol users with the prevalence rates ranging between 28 to 48% [http://www.who.int/substance_abuse/publications/alcohol/en/index.html]. Studies from late 1970's and early 1980's

found that 12.7 % of high school students, 36.6% of university students and 31.6% of non student young people are using alcohol beverages [http://www.who.int/substance_abuse/publications/alcohol/en/index. html]. But generally those who are using alcohol not restricted themselves to single substance use as either alcohol follows the tobacco or tobacco follows the alcohol or any other substance. Tobacco smoking and chewing is one of the major causes of human deaths due to many medical conditions in the world. According to WHO estimates, 4.9 million annual deaths are attributed to tobacco use only. This figure expected to rise to 10 million by 2030, out of which 7 million deaths will occur in developing countries, especially China and India. Currently India constitute about one fifth of overall deaths attributed to tobacco use worldwide, more than 8, 00,000 people die and 12 million people become ill as a result of tobacco use each year [4]. Deaths attributed to tobacco in India are expected to rise from 1.4 % in 1990 to 13.3 % in 2020. It is estimated that 5,500 adolescents starts using tobacco every day in India [5]. World Health Organization defined youth as, "the individual belonging to the age group of 15-24 years" [6]. India now has the second largest number of HIV infected persons in the world [7]. The rise in HIV infections in India has been associated with three main factors: migration, labor mobility and the increasing use of alcohol among high risk populations and the poor. There is considerable concern that widespread and increasing alcohol use is fueling the epidemic and acting as a catalyst in shifting it beyond high risk populations into the general population rural and urban men and women, together with the exposures to sexual S Pattern of Substance Abuse, Sexual Behavior and its Determinants among Unmarried Youth in India risk encountered by male migrants and mobile workers. Alcohol use is increasing in India as a source of revenue for local governments and as a symbol of globalization and modernization [8].

Youth population is considered Very important population group for the wealth of any nation. There are special reasons why we need to concentrate more on youth, is the need of time to discover the new behavior and relationship towards substance use and sexual behaviour specially risky sexual behaviour among youths so that it can be corrected and prevented from serious element of diseases at an early stage. Various studies were conducted on substance abuse among the youths in urban areas. But few studies carried out on substance use and sexual behaviour among youths in India. Hence more such studies are required to know prevalence of substance use, sexual behaviour and its determinants among youths so that preventive actions can be taken as early as possible. With this conditions background we conducted this study among youths in India to know the pattern and determinants of substance use and sexual behaviour and also explore the potential linkage between substance use and sexual behaviour among youths in India. The present study aims to analyses the pattern and determinants of substance use and sexual behaviour among youths in India.

2 II.

3 Data Source and Methodology

Data for the present paper comes from the "Youth in India: Situation and Needs study," a sub nationally representative study conducted in six states (Bihar, Jharkhand, Maharashtra, Rajasthan, Andhra Pradesh, and Tamil Nadu) undertaken between 2006 and 2008 [9]. The six states, selected for their different geographic and socio cultural backgrounds, represent 39% of the country's population. The survey employed a multistage sampling design, initially selecting 300 primary sampling units (PSUs) in each state, split equally between rural and urban areas. In rural areas, the 2001 Census villages served as the sampling frame, with selection proceeding in two stages. First, villages were selected systematically from a stratified list (based on region, village size, caste composition, and female literacy), with selection probability proportional to size. The 150 PSUs selected were then ordered by district and taluka codes and numbered from 1 to 150. Oddnumbered PSUs were designated for interviews with male youth and even-numbered PSUs for female youth. For urban areas, the 2001 Census list of wards (containing multiple census enumeration blocks (CEBs)) served as the sampling frame, with selection proceeding in three stages. First, wards were ordered by district and female literacy, and then 75 wards were selected systematically with probability proportional to size. Second, within each selected ward, CEBs were arranged by their administrative number and one CEB was selected proportional to size. This CEB was designated a male PSU and an adjacent CEB to each selected male CEB was subsequently selected to be a female CEB, resulting in a total of 150 urban CEBs per state. The choice to designate male and female PSUs was guided by concern that the sensitive nature of some questions might lead to teasing, damaged reputations, or violence, if respondents became aware that similar questions were being asked of the opposite sex.

Once the PSUs were selected, household selection involved systematic sampling using a selfweighing design that took into account the target sample. There was no replacement for households that could not be contacted or refused to participate. Of 186, 152 selected households, 174,037 agreed to participate, with a household response rate of 93.5%. A household schedule was administered in participating households to determine whether there was an age-eligible youth living in the household. In households where there were multiple age-eligible youth, the Kish table was used to select one unmarried youth. No replacement of a selected youth was allowed. In all, 45,555 male and female youth aged 15 to 24 participated, with individual response rates ranging from 84% to 90% .

The survey tools were informed by existing surveys and an intensive presurvey with youth, parents, and key stakeholders, both before and after it was translated into four languages (Hindi, Marathi, Tamil, and Telugu, reflecting the major language groups of selected states). Approximately 75 locally trained and regularly

supervised field investigators collected data over a six-to eight-month period. Informed consent was obtained from all respondents as well as parents of unmarried minor youth. To preserve confidentiality, consent forms were detached and stored separately from completed questionnaires. Complete details on all aspects of the survey are available elsewhere [9]. To identify determinants of substance use and sexual behaviour of migrants, bivariate and multivariate analyses were performed. Bivariate analyses were performed to examine the nature of association in the substance use, sexual behaviour by selected socioeconomic and demographic background characteristics. Multivariate analyses used logistic regression to investigate which factors best explain and predict the substance use and sexual behaviour outcome [10]. It is worth mentioning that all the variables identified as significant in the bivariate analyses using the chi-squared test were included in the binary logistic regression model. The results are presented by estimated odds ratio with 95% confidence intervals (CIs). All statistical analysis is done using STATA 13.1 after adjusting study design and sampling weight.

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5 Results and Discussion

Substance use

Alcohol and tobacco are most commonly used substances throughout the world. Alcohol and tobacco are the most commonly used substances India also.

Research has shown that substance uses can directly compromise young people's health. For example, evidence suggests that the use of alcohol and drugs among youth is associated with physical fight, risky sexual activity, depression and suicide as well as irregular school or work attendance and others negative outcomes [11]. The distribution of substance use (tobacco, alcohol, any of them (tobacco or alcohol), both (tobacco and alcohol), by selected sociodemographic characteristics among youth in India are presented in table 1. It is evident from the analysis that the proportion of the male youth consume more tobacco (30.2%), alcohol (18.7%), tobacco or alcohol (35.2%), tobacco and alcohol (13.7%) as compared to female, tobacco (2.1%), alcohol (0.9%), tobacco or alcohol (2.8%), tobacco and alcohol (0.2). Older youth (age group 20-24 years) were consume more as compared to younger youth (age group 15-19 years) in the case of those who were consuming tobacco, alcohol, tobacco or alcohol, tobacco and alcohol. It is already established by the different studies that less educated are consuming more (tobacco as well as alcohol) as compared to those who are more educated and this study reveals same finding also. There was strong connection between the substance use by consuming subsistence any member in family. Analysis shows that youth which family member are using substances were found more substance user as compared to youth which family member were not using the substances use. This indicates that the behavior of youths towards substance use was influenced by the behavior of their family member. Existing evidences clearly show the inverse relationship with wealth quintile and substance use. In other words, with the increase in wealth status of an individual, the substance use decreases. This study also observed the same pattern. The results of the multivariate logistic regression analyses for the tobacco and alcohol use are presented in table 2 reiterate that some important factors such as youth's sex, age, education, wealth quintile, work status, any substance user in family, emerged as significant factors affecting the consumption of tobacco and alcohol. Sex of the youth emerged significant determinants of consumption of tobacco and alcohol. Compared with male, tobacco and alcohol use was found to be less likely among female (OR=0.039 CI=0.035-0.043), (OR=0.028 CI=0.024-0.032), respectively. The probability of tobacco and alcohol use was found to be less among urban as compared to rural. As regards the age of youth, results reiterate that older youth (age group 20-24 year), were found 2.4 times (CI=2.209-2.585), more likely to consume tobacco and 3.3 times (CI=2.953-3.639), more likely to consume alcohol as compared to younger youth (age group 15-19 years).

Lower educational status was strongly associated with tobacco and alcohol use, it was also observed that as educational status of youth increases the tobacco and alcohol use decreases. Other studies also documented similar findings in their studies [12,13]. Youth with 12 or more years having education were found less likely (OR=0.296 CI=0.255-0.344), (OR=0.536 CI=0.447-0.643), to consume tobacco and alcohol as compared to Illiterate youth. The likelihood of using tobacco was observed to be high among youth belonging to the Muslim religion (OR=1.306 CI=1.163-1.466), compared to youth belonging to the Hindu religion, but in case of alcohol use trend showing in reverse direction, the probability of alcohol use was found to be less likely among Muslim religion (OR =0.581, CI = 0.480-0.703), than among Hindu religion. The likelihood of consume alcohol was found to be nearly two times higher (CI = 1.897-2.643) among youth from others religion than among those from the Hindu religion poorest wealth quintile. There was strong association between the substance use by parents (any member in family). Chances of consume tobacco (OR=0.369 CI=0.340-0.400), and alcohol (OR=0.179 CI=0.163-0.197), were found to be less likely among youth which family member were not using any substance use compared to youth which family member were using substance use. Similar findings were documented by Lisa S et al and Kokiwar PR et al in their studies [13,15]. Dhupdale NY et al observed in their study that the alcohol use is 2.9 times higher in those children whose father used alcohol [14]. This indicates that the behavior of youths towards substance use was influenced by the behavior of their parents [13,15]. IV.

6 Sexual behaviors and Safe Sex

Throughout the human history and in almost every society and culture across the globe, there exists the mutual sexual attraction between sexes, which takes its peak during youth. Like many other married couples, unmarried youths do have negative attitudes of misleading information about contraceptives. While studying adolescent sexual behaviour, similar views were also reported by S. J. Jejeebhoy [16]. With nearly half of new HIV infections worldwide occurring in young people aged 15-24 years, changing sexual behaviour in this group will be crucial in tackling the growing pandemic. Campaigns targeting young people have encouraged safer sex, either through condom use or avoiding penetration. Prevention efforts have often involved giving out condoms free of charge and providing information through school talks and leaflets [17]. Other studies indicate that while adolescents' attitudes toward premarital sex are becoming more liberal, their awareness of contraceptives remains poor [18].

The percent distribution of premarital sex and adjusted odds ratio measuring the association between extra marital sex and selected socio-demographic characteristics are presented in table 3. Results reveal from analysis that the premarital sex (13.6%) was higher among male youth as compared to female (3.8%) only. Youth's age, education and wealth quintile were found to be strong factors associated with the consistent condom use among unmarried youth. About (10.85%) male were reported that they were use condom in last sex where as only (2.06%) female use condom in last sex. Odds ratio also showing the condom use were found to be less among youth female ((OR=0.254, CI=0.157-0.409) than youth male. Youth's education emerged as a vital determinant in the condom use. Youth had 12 years or more education they use condom in last sex more (14.16%) as compared to 8-11 year education (8.06%), less than 8 years education (6.42%), illiterate (2.68%), respectively. Youth with 12 years or more education were 2.8 times (CI=1.364-5.533), 8-11 year education were 1.8 times (CI=0.967-3.521) more and less than 8 years education were 1.7 times (CI=0.922-3.407) more likely to use condom in last sex compared with uneducated youth. Youth who have some disposal income in hand i.e, belonging in richest wealth quintile (12.24%), richer wealth quintile (11.21%), were using more consistent condom as compared to poorest wealth quintile youth. Moreover, the odds of consistent condom use among youth who belongs the richest quintile were higher (OR=1.741, CI=0.939 -3.230) compared with those who belongs poorest wealth quintile. Unmarried youth in the study community find it difficult to translate their knowledge and attitudes about condoms into safe sexual practices which has significant implications for intervention development.

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V.

8 Substance use and Sexual behavior

Cross-sectional and longitudinal research on the relationship between alcohol and sexual risk has shown consistent associations across a variety of situations, age groups and countries [19][20][21][22][23]. Studies support the relationship between alcohol and early Further the question were also asked to respondent that frequency of tobacco and alcohol use last 4 week preceding the survey those who were the tobacco and alcohol user. However results reveals that the youth who whose frequency of alcohol use were everyday (30.63%), more than once a week (35.87), once a week (33.04%), once or twice in last 4 week (30.63%), were more involved in sex before marriage as compared to not alcohol user (22.82%) last 4 week. The likelihood of having sex before marriage were higher among youth those frequency of alcohol use were more than once a week (OR=1.543, CI=1.082-2.201), once in a week (OR=1.363, CI=0.995-1.8671) and once or twice in last 4 weeks (OR=1.344, CI=1.018-1.773) as compared to non alcohol user in last 4 week. Youth usually drink alcohol with peer group were more involved in premarital sex as compared to usually drink alcohol with non peer group. The odds having sex before marriage were found lower (OR=0.746, CI=0.542-1.026), among youth usually drink alcohol with non peer group than youth drink alcohol usually with peer group. to be less likely (OR=0.325, CI=0.294-0.360) to have sex before marriage than tobacco user. Youth who were who were alcohol user, they were more (29.89%) involved in the premarital sex as compared to non alcohol user (5.01%) only. The likelihood of having sex before marriage was lower (OR=0.251, CI=0.225-0.281) among youth who were non alcohol user compared to those youth who were alcohol user. association between substance use and pre marital sex among youth in India are presented in table 5. Results reiterate from the analysis that the positive association between substance use and premarital sex. Youth who were using tobacco (21.19%) they were more involved in sex before marriage as compared to non tobacco user. Almost same trend were found in logistic regression analysis. However non tobacco user youth were found

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The results of the multivariate analyses (Binary logistic regression) for the measuring the sexual debut [24], multiple partners [25][26], inconsistent condom use, or lack of protection during intercourse [27][28] unwanted pregnancies, and sexual violence, including sexual abuse, forced sex, and rape [29][30]. Recent research has shown that alcohol plays a role in condom use when gender and partner type are considered [31]. They showed that for women only, condom use was less likely when alcohol consumption preceded sex with non primary partners.

Heavy drinkers are more likely to engage in high risky sexual behavior, including sex for money [32]. They have more sexual partners [33], and use condoms less consistently [34][35][36], though these associations are not always consistent.

10 VII.

Year 2015

11 (H)

Pattern of Substance Abuse, Sexual Behavior and its Determinants among Unmarried Youth in India adults in their life, including parents. Methodologically, the study emphasises the need to continue the search for appropriate methodologies to measure sensitive behaviours among youth as well as the need for prospective or panel study designs that capture the ways in which the situation and experiences in adolescence influence their life courses at later ages. Youth is most important period of human life as they are easily influenced by habits and behaviours of their parents, family member and initiate substance use and sexual behaviour. Hence IEC activities regarding consequences of substance use and risky sexual behaviour should be targeted towards youths, young people but also their peers and the influential VI.

12 Summary and Conclusion

The focus of the present paper is showing the scenario and pattern of substance use, sexual behaviour and its determinants and also association between the sexual behavior and substance use, among youth in India. We conclude by this study that, the prevalence of substance use among male youths was very high. The main reasons for high prevalence of substance use were substance use by using substance in family, work status, caste/tribe, lower educational status. Despite these limitations, our study makes several new and important contributions to understanding the correlates of age at initiation of premarital sex among both young women and men about which information is scant in India. Programmatically, findings underscore the need for sexual and reproductive health interventions to target not only Guruswamy M, What do school children and ¹



Figure 1:

1

Year 2015

Figure 2: Table 1 :

2

I

[Note: Levels of significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. © 2015 Global Journals Inc. (US)]

Figure 3: Table 2 :

4

Pattern

Figure 4: Table 4

3

The odds of having premarital sex by female (OR=0.257, CI=0.235-0.280) were lower compared to male. The probability of premarital sex was found to be more likely among urban youth (OR=0.1326, CI=0.235-0.280), than among rural youth. Education have a positive association with premarital sex. In other hand, increase the educational level, premarital sex also increases. Compared to uneducated youth, those who had less than 8 year educational level (OR=1.435 CI=1.263-1.629), 8-11 years education (OR=1.323 CI=1.162-1.507), 12 or more years education (OR=1.2.1, CI=1.023-1.410), were more likely to have premarital sex as compared to uneducated youth. Youth Background characteristics

those who have some disposal income i. e, paid work were more involved in premarital sex with compared to not working youth. The likelihood of premarital sex was found to be less among not working youth (OR=0.535 CI=0.535-0.651), youth who have work without income "unpaid work" (OR=0.720, CI=0.617-0.840), as compared to youth working with paid work. As related to caste/ tribe the results indicate that scheduled caste youth have more premarital sex as compared to unscheduled caste, other back word caste and general caste. The probability of premarital sex was found to be more likely among scheduled tribe (OR=1.491, CI=1.311-1.695), than scheduled caste.

Background characteristics	Premarital sex		Odds ratio
	Yes	n	
Sex			
Male (ref)	13.6	14281	1.000
Female	3.8	31274	0.257*0.235-0.280

Figure 5: Table 3 :

4

Background characteristics	Yes	Consistence condom use n	Odds ratio	95%CI
Sex				
Male (ref)	10.85	1944	1.000	
Female	2.06	1070	0.254***	0.157-0.409
Residence				
Rural(ref)	11.13	1150	1.000	
Urban	5.63	1864	0.720**	0.530 -0.978
Age Group				
15-19(ref)	4.97	1287	1.000	
20-24	9.79	1727	1.385**	0.999 -1.918
Education				
Illiterate (ref)	2.68	447	1.000	
Less than 8 years	6.42	872	1.772*	0.922-3.407
8-11 years	8.06	1228	1.845*	0.967-3.521
12 or more years	14.16	467	2.747***	1.364-5.533
Religion				
Hindu (ref)	7.59	2412	1.000	
Muslim	9.19	272	1.015	0.626 -1.647
Others	7.58	330	1.707**	1.047 -2.784

Figure 6: Table 4 :

5

Background characteristics	Pre marital sex			
	Yes	n	Odds ratio	95%CI
Tobacco consumption ever				
Yes	21.19	1909	1.00	
No	4.70	40576	0.325***	0.294-0.360
Last 4 week tobacco consume				
Not at all	14.34	258	1.00	
Once or twice in last 4 week	20.13	467	1.452*	0.736-2.864
Once a week	20.00	365	1.776	0.882-3.578
More than once a week	20.27	592	1.196	0.612-2.335
Everyday	23.69	3297	1.578	0.852-2.923
Alcohol consumption ever				
Yes	29.89	2934	1.00	
No	5.01	42621	0.251***	0.225-0.281
Last 4 week alcohol consume				
Not at all	22.82	653	1.00	
Once or twice in last 4 week	30.63	1270	1.344**	1.018-1.773
Once a week	33.04	569	1.363**	0.995-1.867
More than once a week	35.87	329	1.543***	1.082-2.201
Everyday	29.36	109	1.292	0.740-2.254
Usually alcohol drink with peers group				
Yes	30.91	2550	1.00	
No	22.87	376	0.746*	0.542-1.026
Drink so much (Over dose) alcohol				
Never	27.44	1928	1.00	
Sometimes	34.76	961	1.293***	1.053-1.587
Often	31.43	35	0.727	0.253-2.091
Levels of significance:	*p<0.10;			
	p<0.05; *p<0.01.			

Figure 7: Table 5 :

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VIII.

.2 Limitations

The study had a number of limitations. Although the opportunity for reporting pre-marital sex anonymously via the sealed envelope approach did indeed enable a considerable number of sexually active young women and men who opted not to disclose their sexual experiences in face-to-face questioning the opportunity to do so, we note that, as in many studies, pre-marital sexual experience may have been underreported, particularly by young women. Moreover, among young men, it is possible that sex worker, exchange, forced and same-sex relationships were under-reported.

[WHO. Alcohol and Young People. Global Status Rep. WHO ()] , WHO. *Alcohol and Young People. Global Status Rep. WHO* 2001, 1.

[WHO. Alcohol Policy. Global Status Rep. WHO ()] , WHO. *Alcohol Policy. Global Status Rep. WHO* 2004, 1.

[UNAIDS. UNAIDS Fact Sheet on HIV ()] , UNAIDS. *UNAIDS Fact Sheet on HIV* 2007.

[481-485. teachers in rural Maharashtra think AIDS and sex? Health Transition Review ()] '481-485. teachers in rural Maharashtra think AIDS and sex?'. *Health Transition Review* 1997. 7. (Supplement)

[Mohan et al. ()] 'Access to pocket money and low educational performance predict tobacco use among adolescent boys in Kerala'. S Mohan , P Sankara Sarma , K R Thankappan . *Prev Med* 2005. 41 p. .

[Jejeebhoy ()] 'Adolescent Sexual and Reproductive Behavior-A Review of the Evidences from India'. S J Jejeebhoy . *Social Science and Medicine* 1998. 46 (10) p. .

[Benegal and India ()] 'Alcohol and public health'. V Benegal , India . *Addiction* 2005. 100 p. .

[Joohyung et al. ()] 'Alcohol consumption and sexually transmitted disease risk behavior: partner mix among male Korean university students'. K Joohyung , D C David , M C Rosa . *Alcohol Clin Exper Res* 2006. 22 p. .

[Mataure and Mcfarland ()] 'Alcohol use and high risk sexual behavior among adolescents and young adults in Harare'. P Mataure , W Mcfarland . *Zimbabwe. AIDS Behav* 2002. 6 (3) p. .

[Macdonald ()] 'Alcohol, sexual arousal, and intentions to use condoms in young men: applying alcohol myopia theory to risky behavior'. T K Macdonald . *Health Psychol* 2000. 19 (3) p. .

[Hingson et al. ()] 'Beliefs about AIDS use of alcohol and drugs, and unprotected sex among Massachusetts adolescents'. R W Hingson , L Strunin , B M Berlin , T Heeren . *Am J Public Health* 1990. 80 p. .

[Deswal et al. ()] 'Epidemiology of alcohol use among residents of remote hills of Arunachal Pradesh'. B S Deswal , A K Jindal , K K Gupta . *Indian J Community Med* 2008. 31 p. .

[Verma ()] 'Evaluation of AIDS Prevention Education Programme in Rural Maharashtra'. R K Verma . *Mumbai: IIPS* 1995.

[Morris et al. ()] 'Incarcerated adolescents' experiences as perpetrators of sexual assault'. R E Morris , M M Anderson , G W Knox . *Archiv Pediatr Adolesc Med* 2002. 156 (8) p. .

[Dermen and Cooper ()] 'Inhibition conflict and alcohol expectancy as moderators of alcohol's relationship to condom use'. K H Dermen , M L Cooper . *Exper Clin Psychopharmacol* 2000. 8 (2) p. .

[International Institute for Population Sciences (IIPS) and Population Council ()] *International Institute for Population Sciences (IIPS) and Population Council, 2006-2007. 2010. IIPS, Mumbai, India. (Youth in India: Situation and Needs Study)*

[Dingle and Oei ()] 'Is alcohol a co-factor of HIV/AIDS? Evidence from immunological and behavioral studies'. G A Dingle , Tps Oei . *Psychol Bull* 1997. 122 p. .

[Shillington et al. ()] 'Is there a relationship between 'heavy drinking' and HIV high risk sexual behaviors among general population subjects?'. A M Shillington , L B Cottler , W M Compton , E L Spitznagel . *Int J Addict* 1995. 30 p. .

[Lexicon of alcohol and drug terms. WHO ()] *Lexicon of alcohol and drug terms. WHO, 1994. Geneva.*

[Dhupdale et al. ()] 'Prevalence and pattern of alcohol consumption in rural Goa'. N Y Dhupdale , D D Motghare , Ama Ferreira , Y D Prasad . *Indian J Community Med* 2006. 31 p. .

[Reducing risks, promoting healthy life. World Health Rep. WHO ()] *Reducing risks, promoting healthy life. World Health Rep. WHO, 2002. Geneva.*

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- [Akinade ()] 'Risk-taking behavior and substance abuse vis-a-vis HIV transmission in African societies'. E A Akinade . *J Instr Psychol* 2001. 28 (1) p. .
- [Graves ()] 'Risky sexual behavior and alcohol use among young adults'. K L Graves . *Am J Health Promot* 1995. 10 p. .
- [Dunn et al. ()] 'Self-reported alcohol use and sexual behaviors of adolescents'. M S Dunn , R T Bartee , M A Perko . *Psychol Rep* 2003. 92 (1) p. .
- [Ferguson et al. ()] 'Sexual patterning and condom use among a group of HIV vulnerable men in Thika'. A Ferguson , M Pere , C Morris , E Ngugi , S Moses . *Sex Transm Infect* 2004. 80 (6) p. .
- [Patel ()] 'Smoking and Children'. D R Patel . *Indian J Pediatr* 1999. 66 (6) p. .
- [Raine ()] 'Sociodemographic correlates of virginity in seventh-grade black and Latino students'. T R Raine . *J Adoles Health* 1999. 24 (5) p. .
- [Retherford and Choe ()] *Statistical models for causal analysis*, R D Retherford , M K Choe . 1993. New York: Wiley.
- [Lisa et al. ()] 'Substance use among adolescents in urban slums of Sambhalpur'. S Lisa , P A Himanshu , O P Panigrahi . *Indian J Community Med* 2008. 33 p. .
- [Kokiwar and Jogdand ()] 'Substance use among male adolescents in urban slum Area of Karimnagar district, Andhra Pradesh'. P R Kokiwar , Grs Jogdand . *Indian J Public Health* 2011. 55 p. .
- [Leigh and Stall ()] 'Substance use and risky sexual behavior for exposure to HIV: issues in methodology, interpretation and prevention'. B C Leigh , R Stall . *Am Psychol* 1992. 48 p. .
- [Malow ()] 'Substance-abusing adolescents at varying levels of HIV risk: psychosocial characteristics, drug use, and sexual behavior'. R M Malow . *Zimbabwe. AIDS Behav* 2001. 2002. 13 (1-2) p. . (J Subst Abuse)
- [Fritz et al.] *The association between alcohol use, sexual risk*, K E Fritz , G B Woelk , M T Bassett .
- [UNDP Population and HIV/AIDS 2005 (wallchart) United Nations, Department of Economic and Social Affairs ()] *UNDP Population and HIV/AIDS 2005 (wallchart) United Nations, Department of Economic and Social Affairs*, (New York) 2005.
- [Lori et al. ()] 'Urban alcohol consumption, drug use, and condom use among STD clinic patients'. A J Lori , S Scott , P C Michael . *J Stud Alcohol Drugs* 2009. 70 p. .
- [Martin ()] 'Violence in the lives of pregnant teenage women: associations with multiple substance use'. S L Martin . *Am J Drug Alcohol Abuse* 1999. 25 (3) p. .