

KNOWLEDGE ABOUT HIV/AIDS AND HIGH RISK SEXUAL BEHAVIOR AMONG UNMARRIED MALE AGE GROUP BETWEEN 15-29 YEARS AND FACTORS AFFECTING THEM IN URBAN SLUM, INDIA

Pushpendra Kumar Mishra^{1,*}, Jay Shankar Dixit²

¹Institute for Population and Social Research, Mahidol University, Nakhon Pathom 73170, Thailand

²Social Operations Executive, GFK Mode, India

ABSTRACT: This paper is an attempt to examine the knowledge about HIV/AIDS and high risk sexual behavior among unmarried urban slum male age group between (15-29) years in eight India cities. In India, more than one third of the estimated two and a half million people infected with HIV/AIDS are in the 15 to 29-years old age group. However, limited information exists on the factors that influence sexual initiation and other related sexual behaviors among this group. Even less is known about the factors that influence sexual behaviors among young, unmarried males living in urban slums, a population characterized by high vulnerability to STI/HIV infections due to their engagement in sexual and other risk behaviors. To fill in these large gaps of knowledge, this study uses National Family Health Survey-3 (NFHS-3) data of India. The study finding shows that, only 44.6 percent of unmarried male were having comprehensive knowledge of HIV/AIDS (1: knowing that both condom use and limiting sex partners to one uninfected faithful partner are HIV/AIDS prevention methods; 2: being aware that a healthy-looking person can have HIV/AIDS; and 3: rejecting the two most common misconceptions in India) and 6 percent of unmarried male had involved in high risk sexual behavior (refers to the tendency of men having sex without using condom). Binary Regression analyses found factors such as alcohol consumption, religion, respondent education, and wealth index are significantly influenced the comprehensive knowledge of HIV/AIDS and high risk sexual behavior of unmarried male age group between 15-29 years.

Keywords: HIV/AIDS, Sexual behaviors, Slum India, Unmarried male

INTRODUCTION

Globalization of urbanization is seen as one of the most important social changes of the 20th Century. In 2007, the United Nations projected that 3.3 billion persons worldwide would be living in urban areas in 2008, constituting more than half of the world's population [1]. There are marked differentials in the level of urbanization between developed and developing countries. More than three-quarters of the population in developed countries live in urban areas, compared with less than half of the population in developing countries. It is projected that by 2015 more than half of the population of developing countries live in urban areas [2].

In developing countries urban slum settings are evolving new public health challenges with their increasing populations of the poorest and most vulnerable groups in terms of exposure to health

risks and unequal access to services [3, 4]. Rapid urbanization and employment opportunities attract migrant labor and new slums and informal settlements are arising continuously.

A study conducted in Kenya revealed that youths who live in urban slum setting are more prone and increase their risk to adverse sexual outcomes as compared to those youths living in disadvantaged rural areas [4].

In India, there is sparse research on unmarried male youth sexual behavior and its risk of susceptibility to STI/HIV infections [5-8]. Traditionally, premarital sex for girls and boys has been limited in India due to a culture of patriarchy that places great value on the virginity of youth until their marriage and it is assumed that pre-marital sex is relatively rare [9-12]. However, studies conducted in the past two decades show that sexual behavior among unmarried youths is quite prevalent, particularly among young males, with an estimated 20-30% of unmarried young males and 6% of unmarried young females having reported premarital sex [6, 10].

* Correspondence to: Pushpendra Kumar Mishra
E-mail: pushpi.social@gmail.com

Table 1 Socio-demographic characteristics of the unmarried male (n=3277)

Characteristics	Frequency	%
Age (years)		
15-19	1411	43.1
20-24	1315	40.1
25-29	551	16.8
Mean	20.5	
Highest educational level		
No education	162	4.9
Primary	339	10.4
Secondary	2238	68.3
Higher	536	16.4
Occupation of the respondents		
Not working	972	29.7
Prof./Tech/Manager/Clerical/Sales/Service	1134	34.7
Skilled & unskilled manual	1134	34.7
Agri-employee & household domestic	30	.9
Caste of the respondents		
Schedule caste	797	24.8
Schedule tribe	101	3.1
Other backward caste	1096	34.2
General	1215	37.9
Religion		
Hindu	2296	70.1
Muslim	754	23.0
Christian	66	2.0
Sikh	11	.3
Buddhist/Neo-buddhist	141	4.3
Jain	8	.2
Household structure		
Nuclear	1720	53.4
Non-Nuclear	1502	46.6
Wealth index		
Poorest	15	.5
Poorer	79	2.4
Middle	417	12.7
Richer	1308	39.9
Richest	1458	44.5

Negative outcomes of STIs/AIDS threaten the health of this segment of the population. Over one third of the estimated 2.5 million HIV-infected cases in India originate from the age group 15-29 years [13, 14], and half of all new HIV infections occur among men under 30 years [8]. Although in urban areas where sexual behavior and STI prevalence among young male is high, but still HIV/AIDS epidemic among youth remains largely unseen and little is known about young men's sexual behavior [7, 15].

The few studies have conducted among economically disadvantaged urban youth revealed that 47 % of unmarried youth were involved in sexual behavior in Mumbai [7] and 19-28% of male youth of Delhi slum had pre-marital sex [16]. These studies depict a clear picture of noticeable premarital sexual behavior among male slum youth. The probability of getting risk of STI/HIV

infections among young males is high due to unprotected sex, lack of knowledge and poor access to health facilities. To understand further about the knowledge and sexual behavior among young males in urban slum communities, therefore the objectives of this study was to examine how the socio-economic and demographic factors contribute to sexual behavior among unmarried male in slum and to examine the knowledge about HIV/AIDS and high risk sexual behavior among unmarried urban slum male age group between 15-29 years in eight India cities.

METHODS

The National Family Health Surveys (NFHS) are nationwide survey conducted with a representative sample of households throughout the country. The Ministry of Health and Family Welfare (MOHFW), Government of India (GOI), initiated the NFHS

Table 2 Knowledge about HIV/AIDS, prevention method and mode of transmission

Knowledge about HIV/AIDS	Frequency	%
Ever heard of HIV/AIDS	3166	96.6
Knowledge of HIV prevention methods		
Reduce risk of getting AIDS by not having sex at all	2571	81.2
Reduce chances of AIDS by always using condoms during sex	2631	83.2
Limiting sexual intercourse to one uninfected partner	2787	88.1
Knowledge of transmission		
HIV/AIDS cannot be transmitted by mosquito bites	2274	71.8
HIV/AIDS cannot be transmitted by sharing food with person who has AIDS	2635	83.3
Can a healthy person have AIDS	2481	78.4
Comprehensive knowledge of HIV/AIDS	1461	44.6

surveys to provide high quality data on population and health indicators. The MOHFW designated the International Institute for Population Sciences (IIPS), Mumbai, as the nodal agency for each of the three rounds of NFHS.

The third National Family Health Survey (NFHS-3) was conducted in 2005-06. There were four types of respondents covered in NFHS-3 i.e. 15-49 age groups ever married women & never married women, 15-54 age group male married and never married. In NFHS-3, total interviews were conducted with 124,385 women age group 15-49 and 74,369 men age group 15-54 from all 29 states. This study uses the data of NFHS-3 of eight Indian cities (Chennai, Delhi, Hyderabad, Indore, Kolkata, Meerut, Mumbai, and Nagpur) of men segment age group between (15-55) years. In this segment questions were asked related to knowledge, attitude and high risk behavior in connection to HIV/AIDS and alcohol consumption with all the males. In this study, we have analyzed unmarried male age group between 15-29 years, those who were living in slum areas of eight Indian cities at the time of survey. In this paper, first we analyzed the knowledge, prevention method, mode of transmissions of HIV/AIDS and sexual behavior pattern among unmarried male through uni-variate analysis. Further, two new variables such as comprehensive knowledge of HIV/AIDS (1. knowing that both condom use and limiting sex partners to one uninfected faithful partner are HIV/AIDS prevention methods; 2. being aware that a healthy-looking person can have HIV/AIDS; and 3. rejecting the two most common misconceptions in India—that HIV/AIDS can be transmitted through mosquito bites and by sharing food) and high risk sexual behavior (refers to the tendency of men having sex without using condom) were computed. In order to identify socio-economic and demographic factors which are significantly related to comprehensive knowledge of HIV/AIDS and high risk sexual behavior, a binary logistic

regression analysis was carried out separately for these variables.

RESULTS

Mean age of the respondents was 20.5 years with a range of 15–29 years. Among the unmarried male, 4.9 % were uneducated, 10.4 % had 1–5 years of schooling and the rest had either secondary or higher than secondary years of schooling. About 34.7% of the male were worked as a skilled or unskilled manual worker and 29.7 % of the male were not working. Regarding the caste of the unmarried male, 37.9 % were belonging from general caste followed by other backward caste (34.2 %). Majority of them were Hindu 70.1% and 23% were Muslims. More than half of the unmarried male were from nuclear family and the rest from joint/or extended family. Majority of them were from richest wealth quintile 44.5 % followed by richer wealth quintile 39.9%, (Table 1).

Out of 3277 male, 96.6 % of unmarried male age group between 15-24 years ever had heard of HIV/AIDS. Regarding the knowledge of prevention method among those male who ever heard about AIDS, 81.2% of male reported that reduce risk of getting AIDS by not having sex at all followed by always using condom during sex 83.2% and having sexual intercourse with one uninfected partner (88.1%). In terms of the mode of transmission, 71.8 % of male mentioned HIV/AIDS cannot be transmitted by mosquito bites, 83.3 % reported, HIV/AIDS cannot be transmitted by sharing food with person who has AIDS and 78.4% revealed that healthy person can also have AIDS. It is important to notice that only 44.6 percent of unmarried male in urban slum have comprehensive knowledge of HIV/AIDS prevention and transmission, (Table 2). Binary logistic regression analysis was carried out to assess the independent effects of the variables on comprehensive knowledge of HIV/AIDS. In this model, first all the variables except wealth index were converted in to binary variables (0, 1). We

Table 3 Unmarried male's comprehensive knowledge about AIDS: multivariate analysis

Comprehensive knowledge of HIV/AIDS	Odds Ratio	Std. Err.	[95% Conf. Interval]	
Age group (15-19 years)	0.5933718***	0.048537	0.505475	0.696553
Highest education level (No education)	0.5585106**	0.118817	0.368085	0.847452
Religion (Muslim)	0.5556221***	0.0503125	0.465267	0.663525
Skilled & un-skilled worker	1.30138**	0.1159437	1.092869	1.549674
Wealth index	0.7060119***	0.0360815	0.63872	0.780393
Pseudo R2	0.0420 ***			

*** : $P < 0.0001$ **; $P < 0.01$ * $P < 0.05$

Table 4 Pattern of high risk behavior among unmarried urban slum age group between 15-29 years

High risk behavior	Frequency	%
Life time sexual partner		
No sexually active	2871	87.6
One partner	240	7.3
Two partners	66	2.0
Three partners	37	1.1
Four or more partners	63	1.9
Age at first sexual intercourse		
< 15 years	17	4.2
15-19 years	194	48.0
20-24 years	176	43.6
25-29 years	17	4.2
Condom used at first sexual intercourse		
No	201	49.6
Yes	204	50.4
Frequency of alcohol consumption		
Almost every day	32	4.1
About once a week	172	22.3
Less often	568	73.6
High risk sexual behavior*		
No	3075	93.9
Yes	201	6.1

*Refers to the tendency of men having sex without using condom

have considered unmarried male age groups between 15-29 years, who have comprehensive knowledge of HIV/AIDS as outcome variable and five variables as independent which were entered in to logistic regression model. Analysis revealed that odds ratio of age is .59, which indicate that older unmarried males (20-24 & 25-29 years age groups) are significantly more likely to have comprehensive knowledge of HIV/AIDS than their young counterparts (15-19 years age group). Level of education was an important predictor of having comprehensive knowledge on HIV/AIDS. Odds ratio of education is .55, which shows that those unmarried males have completed primary, secondary or higher education are likely to have more comprehensive knowledge of HIV/AIDS as compared to uneducated unmarried males.

In terms of occupation, the odds ratio is 1.3 means that those unmarried males were involved in manual work (skilled & unskilled), had less

comprehensive knowledge of HIV/AIDS as compared to other categories (Not Working, Prof./ Tech/ Manager/ Clerical/ Sales/ Service and Agri-Employee & Household Domestic). Regarding the religion, odds ratio is .55, which shows that those unmarried males belongs from Muslim religion are having less comprehensive knowledge of HIV/AIDS as compared to other religions. The odds ratio of wealth index is .70, which indicates that richest wealth quintile males are significantly more likely to have comprehensive knowledge of HIV/AIDS as compared to other wealth quintiles males, (Table 3).

Majority of the unmarried males 87.6% had not been sexually active and of the 406 males who reported being sexually active, 48% had their first sexual experience between age group 15-19 years. Among the sexually active unmarried males, the likelihood of their having sexual Intercourse increased monotonically with age. The majority of

Table 5 Unmarried male's high risk sexual behavior: multivariate analysis

High risk behavior	Odds Ratio	Std. Err.	[95% Conf. Interval][11]	
Age group (25-29 years)	2.047515***	0.3450715	1.471541	2.848929
Highest education level (No education)	0.923011	0.2913022	0.4972419	1.71335
Skilled & un-skilled worker	1.946223***	0.2988747	1.440379	2.629715
Alcohol consumption (Every day)	4.759888***	2.038476	2.056175	11.01878
Comprehensive knowledge of HIV/AIDS (No knowledge)	1.187913	0.1615662	0.8044888	1.446949
Wealth index	1.187913	0.1098849	0.9909379	1.424042
Pseudo R2	0.0378 ***			

***: $P < 0.0001$ **: $P < 0.01$ * $P < 0.05$

sexually active males had only one sexual partner, although 5% reported having more than one partner. Condom use at first intercourse was reported by 50.4 % of the males. Regarding the frequency of alcohol consumption, 4.1% of males were drinking every day followed by about once in a week 22.3 %. It is important to note that 6.1 percent of unmarried males were found to be involved in high risk sexual behavior (High risk sexual behavior refers the tendency of men having sex without using condom), (Table 4).

Binary logistic regression analysis was carried out to assess the independent effects of the variables on high risk sexual behavior. In this model, first all the variables except wealth index were converted in to binary variables (0, 1). We have considered unmarried male age group between 15-29 years, who have involved in high risk sexual behavior as outcome variable and six variables as independent variables which were entered in to logistic regression model. Analysis revealed that odds ratio of age is 2.0, which indicate that older unmarried males (25-29 years age group) are significantly more likely to engage in high risk sexual behavior than their young counterparts (15-19 & 20-24 years age groups). Odds ratio of education is .92, which is not significant that means education is not positive associated with high risk sexual behavior. In terms of occupation, the odds ratio is 1.9 means that those unmarried males were involved in manual work (skilled & unskilled), are more likely to engage in high risk behavior as compared to other categories (Not Working, Professor/ Technician/ Manager/ Clerical/ Sales/ Service and Agricultural employee & Household domestic). Regarding the alcohol consumption, odds ratio is 4.7 which indicate that those unmarried males consumed alcohol everyday are more likely to engage in high risk behavior than those unmarried males did not consume alcohol frequently. Odds ratio of comprehensive knowledge of HIV/AIDS is 1.18 which shows that those unmarried males have comprehensive knowledge of HIV/AIDS are less likely to involve in high risk

sexual behavior, but it is not statistically significant. The odds ratio of wealth index is 1.19, which is not positive associated with high risk sexual behavior, (Table 5).

DISCUSSION AND CONCLUSION

This study analyzed NFHS-3 data of unmarried male age group between 15-29 years living in slum areas of eight Indian cities. The study findings indicated that almost 97 % of unmarried male's ever had heard of HIV/AIDS. However, comprehensive knowledge of HIV/AIDS was found to be very less.

Further, about 12.3% of unmarried male were found to be sexual active. 48% of unmarried male's had their first sexual experience between age group 15-19 years, which was similar with other study conducted among male youth in India. According to study, sexual initiation was higher among 18 years of male youth in India [5]. The use of condoms at first sex is substantially high at 50.4 % as compared to < 30% in Brazil and Zambia. The higher use of condoms at first sex could be due to later age at sexual initiation [17]. For example, a study indicated that male youth in rural Zimbabwe initiated sex at a relatively late age of 19 years as compared to other estimates for African countries but with more consistent condom use [18].

The study findings revealed that while sexual activity begins late and its occurrence is low among unmarried youth living in these particular slums, young male possessing certain characteristics were more likely to have experienced pre-marital sex. It was also observed that those unmarried male reported their occupation as skilled & un-skilled manual worker and having no education were more prone to engage in high risk behaviour activity as compared to other groups. This is also statistically significant at 1% level.

The findings of this study provide important insights into some of the individual and environmental determinants of comprehensive knowledge of HIV/AIDS and high risk sexual

behavior among male urban slum youth in India. Further research is necessary to investigate the impact of these factors during the early years on gender differences in virginity, sexual experiences and behaviors in low resource urban youth populations.

ACKNOWLEDGEMENT

This publication was possible with partial support provided by the funds made available under the Higher Education Research Promotion and National Research University Project of Thailand, office of the Higher Education Commission (Project no. AS1148A-55).

REFERENCES

1. United Nations Population Fund [UNFPA]. Unleashing the potential of urban growth. New York: UNFPA; 2007.
2. United Nations [UN]. World urbanization prospects; 2005 revision. New York: United Nations Population Division; 2005.
3. David AM, Mercado S.P, Becker D, Edmundo K, Mugisha F. The prevention and control of HIV/AIDS, TB and vector-borne diseases in informal settlements: challenges, opportunities and insights. *J Urban Health*. 2007 May; 84(Suppl 1): 65–74.
4. Dadoo FN, Zulu EM, Ezech AC. Urban-rural differences in the socioeconomic deprivation- Sexual behavior link in Kenya. *Soc Sci Med*. 2007 Mar; 64(5):1019-31.
5. Collumbien M, Das B, Bohidar N. Male sexual debut in Orissa, India: context, partners and differentials. *Asia Pacific Population Journal*. 2001; 16(2): 211-24.
6. Hausner D. Sexual behavior among male college students in southern India: implications for HIV risk and prevention. [Doctoral dissertation]. Baltimore, Maryland: Johns Hopkins University; 2002.
7. Abraham L, Kumar KA. Sexual experiences and their correlates among college students in Mumbai City, India. *Int Fam Plan Perspect*. 1999; 25(3): 139-46.
8. Verma RK, Pulerwitz J, Mahendra V, Khandekar S, Barker G, Fulpagare P, et al. Challenging the changing gender attitudes among young men in Mumbai, India. *Reprod Health Matters*. 2006 Nov; 14(28): 135-43.
9. Sharma V, Sharma A. Adolescent boys in Gujarat, India: their sexual behavior and their knowledge of acquired immunodeficiency syndrome and other sexually transmitted diseases. *J Dev Behav Pediatr*. 1997 Dec; 18(6): 399-404.
10. Jejeebhoy S. Adolescent sexual and reproductive behavior: a review of the evidence from India. *Soc Sci Med*. 1998 May; 46(10): 1275-90.
11. Abraham L. Bhai-behen, true love, time pass; friendships and sexual partnerships. *Culture, Health & Sexuality*. 2002; 4(3): 337-53.
12. Alexander M, Garda L, Kanade S, Jejeebhoy S, Ganatra B. Romance and sex: pre-marital partnership formation among young women and men, Pune District, India. *Reprod Health Matters*. 2006; 14(28): 144-55.
13. Bhat PN, Arnold F, Gupta K. National Family Health Survey -3, India Report. Mumbai, India and Calverton, MD, USA: International Institute of Population Sciences and Macro International; 2005.
14. National AIDS Control Organization [NACO]. Annual Report India. India: NACO; 2005.
15. Awasthi S, Nichter M, Pande VK. Developing an interactive STD prevention programme for youth: lessons from a north Indian slum. *Stud Fam Plann*. 2000 Jun; 31(2): 138-50.
16. Jaya H, Hindin MJ, editor. Sex, gender and discordant reporting among adolescents in urban India. New York: Population Association of America; 2007 [cited 2013 April]. Available at: <http://paa2007.princeton.edu/papers/71351>
17. Juarez F, LeGrand T. Factors influencing boys' age at first intercourse and condom use in the Shantytowns of Recife, Brazil. *Stud Fam Plann*. 2005; 36(1): 57-70.
18. Hallett TB, Lewis JC, Lopman BA. Age at first sex and HIV infection in rural Zimbabwe. *Stud Fam Plann*. 2007; 38(1): 1-10.