**Factors Influencing Early Sexual Initiation, Lifetime Partners and Condom Use among Male College Youth in Pune India**

ABSTRACT

The study examines the factors that influence sexual behaviors among young, unmarried college males in urban India, a population characterized by high risk of transmission of HIV/STDs. Data collected from 900 unmarried male college youth examined the relationships between age at sexual initiation, number of sexual partners, and condom use at first intercourse and factors within the socio-ecological framework at the family, peer and individual-levels, during the respondents' formative years. Regression analyses showed that experiencing violence in the home and having peers who drank significantly impact sexual behaviors. The mode of interview was also significant with the Computer Assisted Self Interview yielding highest reporting of sexual activity. These findings indicate that while family and friends can play an important role in the initiation of sexual behavior, in conservative urban college settings social stigma regarding premarital sex impacts the reporting of sexual behavior thus making actual prevalence of such behavior unknown.

**Introduction**

Young males living and attending colleges in India are at high risk of STI and HIV infections [1, 2]. From the estimated 3.1 million people infected with HIV in India [3], approximately one-third of HIV infections are believed to occur among young men below the age of 30 years [4]. Studies conducted among STI patients in Pune, India have documented that HIV infection is independently associated with commercial sex work and other related sexual risk behaviors, such as multiple sexual partners, receptive anal intercourse, and lack of condom use [5]. Men having STIs and engaged in sexual risk behaviors are suggested to play the role of the bridge population between the high-risk core populations of commercial sex workers and the low or no risk populations [6]. Young HIV-infected men are believed to play a particularly important role in the spread of HIV in India because they have a longer time span of being sexually active. While limited studies exist among young males in India, from the few that have been conducted, it has been demonstrated that a substantially high proportion of young men report premarital sexual relations – 26 percent and 47 percent – in the two recent studies conducted [7,8].

Given the sociodemographic diversity of India, an understanding of the context within which sexual risk behaviors occurs is critical for informing HIV policy and programming for young males. In urban settings, for example, the easy availability of commercial sex and liquor [9, 10] have been shown to place young males at particularly high risk for HIV. Beyond having easy access to alcohol and commercial sex, there is very little known as to what pre-existing factors or influences during the childhood and teenage years, increase or decrease the risk among young males to later engage in unsafe sexual behaviors. More importantly, while we know from studies published elsewhere that adolescents' families and peers exert a strong influence on their

sexual behaviors [25, 28], very little has been published on how these factors influence sexual behaviors among males living in the urban slums of India.

This study aims to fill in these knowledge gaps by examining the factors in relation to sexual behaviors among urban male college youth in Pune, India. Of particular interest is the early onset of sexual activity: studies indicate that young males engaging in sex at 15 years or younger are less likely to use protection, and increase their risk of HIV/STDs over a longer period of sexual activity [26, 27]. This study uses the theoretical concept of the socio-ecological framework to understand the possible factors at the family, peers and individual levels that increase and decrease urban slum youth's vulnerability to participating in early sexual risk behaviors. The framework implies that factors at the family and peer level are equally important in determining individual behavioral outcomes as individual level characteristics.

There has surprisingly been very little socio-ecological research conducted among urban college populations in India – a population characterized by considerable experimentation with sexual activity. This paper will therefore serve as a starting point for exploring the relevance of the socio-ecological framework among a sample of urban male college youth by identifying the factors, specifically those that existed during the formative years, which impact the likelihood for subsequently engaging in harmful sexual practices.

**Methods**

*Study area and population*

The city of Pune, located in the state of Maharashtra, India, is particularly well suited to the study of factors associated with early sexual debut and other risk behaviors among unmarried youth in urban settings. Rapid industrialization and proximity to Mumbai has resulted in an influx of migrant workers and the proliferation of slums and slum-dwelling youth. Along with

Mumbai, Pune is one of the major areas of HIV incidence and prevalence in India with a prevalence rate of around 1.2% [17].  Since the primary objective of our study was to better understand sexual and other risk taking and protective factors influencing young male behavior, a strong rationale existed for studying the population characterized by riskier behaviors. Therefore, data was collected among a sample of unmarried male youth aged 18-22 years, attending college in Pune. Sample size calculations led to a target sample size of 900 male youth[1].

*Data collection*

Interviews were typically conducted in the evenings during weekdays and during the day on weekends to coincide with the work schedule of youth.  Two interview modes - the Audio Computer Assisted Self Interview (Audio-CASI/ACASI) and the Face to Face Interview (FTFI) - were used to administer questions. A previous project objective was to research the comparative efficacy of the two interview methods in eliciting information on sensitive risk behaviors; these results have been published elsewhere [18]. Survey questions were worded exactly the same and introduced in the same order across interview modes. In all, 300 males were interviewed with face-to-face interviews and 300 with Audio-CASI between July and November of 2003. The questionnaire used for this survey was adapted from a core questionnaire developed by the World Health Organization [19] and was modified to incorporate factors affecting adolescent sexual activity and other risk behaviors gleaned from a review of literature on adolescent sexual behavior in India and other developing countries. The questionnaires were available in the two

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[1] The sample size calculations were based on the objective of the study to compare efficacy of the two interview methods (face-to-face and ACASI) and hence was not a representative sample of all urban slum youth. The sample size was arrived at by using a significance criterion of 0.05, and power of the significance test of 0.80, and a minimum difference of 7 percent in the proportion reporting a specific risk behavior across interview modes

principal languages of the area (Marathi and English), and respondents were allowed to choose the language they were most familiar with to complete the interview.

The data were entered in SPSS and were subsequently converted into STATA SE 8 and 9 for analysis.

*Description of variables and analysis*

The study considered three outcomes related to heterosexual sex: age at first sex, total number of lifetime sexual partners and condom use at first sexual intercourse. Age at first sex was a categorical variable defined as sexual intercourse by age 17. The correlates of early age at first sex (defined as sexual intercourse before the age of 15 years) were also examined. The behavioral outcome of number of life time sexual partners was studied for the entire sample as a continuous variable for no partners (not sexually active), one partner, two partners, three partners and four or more partners. Condom use at first sexual intercourse was considered only for those who reported being sexually active and was defined categorically as use or non-use of a condom at first heterosexual intercourse.

The independent variables affecting the three outcomes of youth sexual behavior described above were chosen from a detailed review of the literature (see table 1 for list of independent variables).

<center>*Insert Table 1 about here*</center>

Bivariate analysis examined the associations between the various independent variables and each of the outcomes. Significant bivariate associations ($p<.05$) with the outcomes and theoretical importance in terms of explaining the outcomes of interest directed the final set of variables to be included for the multivariate models. The study examined demographic and socio-economic variables as well as other determinants that capture aspects of the family and

peer environment and interpersonal relations during the respondent's formative years, including the nature of the sexual relationship for the prediction of condom use at first sex. For example, parental supervision during the respondent's formative years was examined in terms of the freedom of movement to and from his home, with more freedom of movement indicating a lesser degree of parental supervision. Similarly, the safety of the home was examined in terms of the amount of physical or sexual abuse the respondent experienced during his childhood and teenage years. An attempt was made to include exogenous variables in the models so that a low possibility existed of reverse causation. The reference category for each variable was hypothesized to be the least likely to contribute to the negative outcomes, age at first sex and the number of life time partners, and most likely to contribute to a positive outcome for condom use at first intercourse.

Logistic regressions were used to examine the odds of the two binary outcomes of having sex on or before the age of 17 years and the use of a condom at first sexual intercourse. Predicted probabilities were also calculated against each of the explanatory variables of the respondent having first sexual intercourse on or before the age of 15 years. OLS regression was used for calculating the coefficients for the third continuous outcome of number of life time partners.

**Results**

Preliminary results showed that experiencing violence in the home and having peers who drank significantly impact sexual behaviors. The mode of interview was also significant with the Computer Assisted Self Interview yielding highest reporting of sexual activity. These findings indicate that while family and friends can play an important role in the initiation of sexual

behavior, in conservative urban college settings social stigma regarding premarital sex impacts

the reporting of sexual behavior thus making actual prevalence of such behavior unknown.

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Table 1: List of independent variables and how they were measured

| Variable | Items | Measurement* |
|---|---|---|
| Socio-Demographic Factors/Interview method | | |
| Age | Age of respondent at last birthday | Categorical (18, 19, 20, 21, >21) |
| Religion/caste | Religion practiced by respondent | Categorical: (Hinduism, Islam, Christianity, Buddhism, other) |
| | Caste of respondent | Categorical: (Scheduled/Backward caste, other backward caste, open category) |
| Academic performance during Childhood/identification with academic goals | What kind of student/worker have you been in your childhood and teenage years? | Categorical: (below average, average, above average, outstanding) |
| Interview method | Type of survey respondent was randomly assigned to: ACASI or Face-to-face interview(FTFI) | Categorical: (FTFI, ACASI) |
| Family and Home environment | | |
| Educational level of mother | What is the highest class/grade/standard your mother completed? | Categorical: (0-4 yrs, > 4 yrs) |
| Type of Family during Childhood | Whom did you live with most of the time during your childhood and teenage years? | Categorical: (both parents, mother only/father only, others, parents not present) |
| Freedom of Mobility (Parental supervision/Freedom of Movement from Home During Childhood) | Did you have freedom to go and come from your house as and when you wanted to during your childhood and teenage years? | Categorical: (never, rarely, sometimes, mostly) |
| Experienced Violence | Were you ever a victim of physical abuse at home or outside during your childhood and teenage years? | Categorical: (never, rarely, frequently, almost everyday) |
| Peer influence | | |
| Peers Drinking of alcohol | Did your friends/peers drink alcohol during your childhood and teenage years? | Categorical: (never, rarely, frequently, almost everyday) |
| Partner characteristics | | |
| Type of Partner at first sex | Who was the person you had your first sexual activity with? | Categorical: (friend/girlfriend, acquaintance/neighbor, prostitute) |

**\***Measurement created for the analysis