

Sexual Experiences and Their Correlates Among College Students in Mumbai City, India

By Leena Abraham and K. Anil Kumar

Context: *Isolated studies indicate that pregnancy and sexually transmitted diseases are on the rise among unmarried teenagers in India. However, little research has focused on sexual behavior among unmarried young people, partly because of the assumption that it is governed by traditional norms.*

Methods: *Results of a 1997 survey conducted among 966 low-income college students in metropolitan Mumbai (Bombay) are examined to identify levels of sexual behavior. Multivariate analysis is used to determine correlates of that behavior.*

Results: *Some 47% of male participants and 13% of female respondents had had any sexual experience with a member of the opposite sex; 26% and 3%, respectively, had had intercourse. Individual-level characteristics such as age and personal income had modest effects on students' sexual behavior, and family-level variables had no significant effects. The strongest predictors of sexual behavior were students' knowledge about sexuality-related issues, attitudes toward sex, and levels of social interaction and exposure to erotic materials. However, the results differed for young men and women, and the effect of knowledge was inconsistent.*

Conclusions: *Traditional norms and the role of the family are losing their importance in governing young people's sexual behavior in India. School-based sexuality programs are needed that will provide students with accurate information about pregnancy, contraception and sexually transmitted diseases.* International Family Planning Perspectives, 1999, 25(3):139-146 & 152

Increases in unintended teenage pregnancies, the spread of reproductive tract infections and sexually transmitted diseases (STDs), and the imminent threat of an HIV epidemic in recent years have increased the significance of sexuality research in India. Yet, very few studies have examined sexuality and sexual behavior among unmarried youth in India, for a variety of reasons. Since premarital sex is traditionally taboo in India, it is widely believed that the rather rigid social norms governing premarital sex and marriage and the practice of sex segregation of young people prevent sexual behavior among them. It is also commonly assumed that family and educational institutions exercise greater control over the sexual behavior of unmarried youth in India than in the West.

For these reasons, and because young people traditionally have entered marriage before or on attainment of puberty, premarital sex has been rare in India. However, recent studies conducted in different parts of the country show that sexual behavior among unmarried adolescents is on

the rise, especially in urban areas, where an estimated 20–25% of unmarried young males and 6–10% of unmarried young females have experienced premarital sex.¹ Other studies indicate that while adolescents' attitudes toward premarital sex are becoming more liberal, their awareness of contraceptives remains poor.²

Studies on abortion and on the prevalence of STDs in India, though few, confirm that much premarital sex is unprotected. Adolescents constitute a sizable proportion of women seeking abortions (more than one-quarter at some sites), and the typical adolescent abortion seeker is unmarried; additionally, unmarried women tend to delay seeking abortion, often until the second trimester, which could result in serious health problems.³ A study conducted among STD clinic patients in an urban center noted that about 75% of clients were 18–19 years of age.⁴

The few studies that have examined adolescent sexuality differ significantly from each other in their objectives, approaches and methodologies. Recent reviews of research on sexual behavior⁵ and adolescent sexuality⁶ have cautioned that these studies are limited and that their findings cannot be generalized, because they are based on very small samples or convenience samples, made up mainly of

males. Furthermore, their focus has been primarily on the extent of sexual behavior among youth rather than on the correlates of that behavior.

In this article, we explore heterosexual behavior and its correlates among college students in the metropolitan city of Mumbai (Bombay).

Methodology

Data

The study is based on empirical data gathered from a representative sample of low-income youth attending college in Mumbai. We focused on low-income students for several reasons. Existing studies are mainly of English-speaking students or those attending "elite" colleges, where the student body is predominantly middle- or upper-class. We assumed that students from low-income families may live in more restrictive family environments and have fewer resources and opportunities to explore their sexuality than those from higher income groups. Furthermore, whereas some elite colleges have been organizing sexuality education programs for their students, such programs are rare, if not absent, in colleges whose students are largely from low-income families.

Data were collected in two phases. During 1996, we gathered qualitative information, using focus-group discussions and interviews to gain an overview of students' experiences, including their sexual experiences. We used this information in designing the second phase of the study, which consisted of a survey conducted during 1997. The findings discussed in this article are based primarily on the survey, although some findings from the focus groups and interviews are also included.

Sample Selection

The study was conducted at four colleges that had predominantly low-income student bodies, were coeducational and of

Leena Abraham is senior lecturer and K. Anil Kumar is lecturer, both at the Tata Institute of Social Sciences, Mumbai, India. The research on which this article is based was funded by The Rockefeller Foundation and coordinated by the International Center for Research on Women.

*These findings come from hospital- or clinic-based studies and include only legal abortions. However, the United Nations Children's Fund (UNICEF) estimates that out of the five million induced abortions performed annually in India, 4.5 million are performed illegally. (Source: UNICEF, *Children and Women in India: A Situational Analysis*, New Delhi: UNICEF, 1991.)

ferred both higher secondary (junior college) and undergraduate (senior college) courses in the arts, science and commerce.* These criteria assured representation of students of both genders, of different age-groups and from the three main academic programs. We identified colleges in which the bulk of students were from low-income families by asking local experts to rank all colleges in Mumbai according to students' socioeconomic status. Four colleges were consistently ranked as having a mainly low-income student body; their principals confirmed that classification.

We collected qualitative data at two colleges and conducted the survey at the other two. In the qualitative study, students either volunteered to participate (for focus groups) or were recruited by the research team (for interviews). The survey was conducted among a representative sample of students drawn from the 11th standard and the third year of senior college; thus, the sample includes students just beginning college and those entering their final year.

The total sample size planned for the survey was 1,000, to be equally distributed among 11th-standard and third-year students. The subsample of third-year students was intended to represent the distribution of males and females in the different academic tracks in the two colleges; however, as a result of high rates of absenteeism, the sample fell short by 29 males from the commerce program and five from the arts program. Thus, the final sample consisted of 966 students (625 males and 341 females). In each college, the survey was completed on a single day. Therefore, the findings can be generalized only to students who attend classes or at least come to college.

A pilot-tested, structured, self-administered questionnaire was used for the survey and was provided in both English and Marathi, the local language. Teachers and college authorities were not involved in

administering the questionnaire. Members of the research team briefed the students about the purpose and significance of the study; they also explained that responses would be confidential and that participants were not required to put their names on the questionnaire. The students were told that their participation was voluntary, but none refused to take part.

Analytic Framework

Our analysis examines students' sexual behavior using two variables: any sexual experience (defined as kissing, hugging, touching sex organs or being touched, sexual intercourse, and anal and oral sex) and sexual intercourse with a partner of the opposite sex.[†]

We considered sexual intercourse separately because of the potential risks it carries. We examined any sexual experience for several reasons. First, given societal attitudes toward sexual behavior among youth, sexual experience could indicate liberal attitudes toward premarital sex. Furthermore, too few young women reported sexual intercourse to permit meaningful comparisons by gender. Finally, in a developing society like India's, attitudes and behaviors change gradually under the influence of modernization and its characteristic Westernization; thus, the tendency toward increasingly liberal sexual behavior may become more evident if we examine any sexual experience rather than restrict the analysis to intercourse. However, this variable may be an indicator of the potential for premarital sex among students in urban India at a time when the influence of modernization becomes more visible.

Results from the qualitative phase of the study and data from similar research reported in the literature indicated that three categories of variables influence students' sexual behavior and thus should be included as independent variables in the analysis: individual-level, familial and intermediate factors.

The individual variables that we considered likely to influence sexual experience were age, religious affiliation and beliefs, work status and personal income. The family-related variables expected to be significant were parents' education and occupation, family income, type of residence, religiosity in the family ("very religious," "religious" or "not religious"), family environment ("comfortable," "uncomfortable" or "neither"[‡]) and family restrictiveness ("very strict," "strict," "not strict" or "not at all strict").

The intermediate variables, which may be dependent on individual-level and fa-

miliar ones, were students' levels of knowledge about issues related to sexual behavior; their attitude toward sex in general and toward premarital sex in particular; the degree of their social interaction; and their exposure to erotic materials. We assessed students' level of knowledge by asking 2–3 questions seeking basic information that we assumed a young person attending an urban college would have about each of four topics (pregnancy, contraception, STDs, and HIV and AIDS);[§] we then combined the scores to classify the level of knowledge as low, moderate or high.

We classified respondents' attitudes as liberal, moderate or traditional on the basis of students' level of agreement (on a five-point scale, ranging from "strongly agree" to "strongly disagree") with 20 statements related to sex and premarital sex. Statements such as "Masturbation is unhealthy" and "Women do not enjoy sex as much as men do" were used to construct the scale for attitudes toward sex in general. Those on premarital sex were intended to focus more closely on students' views of their own behavior—for example, "If I love a girl/boy, I would do anything with her/him, including sex" and "I think it is wrong to have sexual intercourse before marriage."

Students' social interaction was rated as low, moderate or high on the basis of their frequency of participation (rated on a four-point scale from "never" to "very often") in a variety of activities with peers of both genders. The activities included going to cinemas, picnics, restaurants, video parlors, bars and discotheques.

Similarly, students' level of exposure to erotic materials was classified as low, moderate or high, according to how often they had seen erotic drawings and movies, and had read erotic or pornographic literature.

In bivariate analyses, we used chi-square testing to examine the association between sexual experience and each independent variable. A multivariate logistic regression analysis was employed to quantify and compare the likelihood of sexual experience among youth within the categories of selected independent variables. We conducted three such regressions, with sexual intercourse among males, any sexual experience among males and any sexual experience among females as the dependent variables.

Results

Profile of the Sample

Among the 966 students who participated in the survey, 12 males and six females were married and were therefore exclud-

*"Junior college" refers to higher secondary school (11th and 12th standards) attached to a college. "Senior college" refers to the three-year undergraduate program. Both levels include courses in the three academic programs.

†Some 18% of young men and 4% of young women reported having had a sexual experience with a same-sex partner; we did not gather detailed information on this topic.

‡Comfortable family atmosphere refers not only to physical comforts but also to a generally cordial environment.

§For example, one question on STDs asked whether the term referred to diseases transmitted through sexual contact, a contraceptive device, a medical test to detect AIDS or infertility; the second asked whether a person can acquire STDs through a variety of means (including sharing utensils, eating unhygienic food and having sexual contact with an infected individual).

Table 1. Percentage distribution of college students, by selected individual-level characteristics; and percentage distribution, by each characteristic, according to sexual behavior; Mumbai, 1997

Characteristic	% dist. of students		Any sexual experience						Sexual intercourse (males)			Total
	Males (N=613)	Females (N=335)	Males			Females			Yes	No	No response	
			Yes	No	No response	Yes	No	No response				
Age-group												
≤15	3.1	5.1	21.0	73.7****	5.3	11.8	88.2***	0.0	10.5	84.2****	5.3	100.0
16–18	49.4	38.5	35.3	60.4	4.3	6.3	92.2	1.5	19.5	80.0	0.5	100.0
19–21	29.9	49.0	56.3	38.2	5.5	15.2	81.7	3.1	26.8	71.6	1.6	100.0
≥22	17.6	7.5	67.6	25.9	6.5	28.0	68.0	4.0	46.3	52.8	0.9	100.0
Year in school												
11th standard	56.4	43.9	36.1	59.2****	4.7	6.8	91.8***	1.4	20.5	78.0****	1.5	100.0
Third year of college	43.6	56.1	60.7	33.7	5.6	17.0	79.8	3.2	33.3	65.9	0.8	100.0
Academic program												
Arts	33.1	41.2	53.2	43.3***	3.5	11.6	84.8**	3.6	31.0	68.0***	1.0	100.0
Science	35.2	27.2	39.3	56.5	4.2	19.8	78.0	2.2	19.0	80.1	0.9	100.0
Commerce	31.6	31.6	48.4	43.8	7.8	7.5	91.5	1.0	28.9	69.6	1.5	100.0
Work for income												
Yes	14.5	12.2	67.4	24.7****	7.9	17.1	78.1	4.8	49.3	50.6****	0.1	100.0
No	84.5	87.5	42.9	52.5	4.6	11.9	86.0	2.1	22.4	76.3	1.3	100.0
No response	1.0	0.3	†	†	†	†	†	†	†	†	†	na
Personal income (rupees)												
≤100	30.3	39.7	29.6	67.7****	2.7	6.8	91.7	1.5	11.3	87.6****	1.1	100.0
101–250	18.4	18.2	53.1	46.0	0.9	13.1	83.6	3.3	24.8	74.3	0.9	100.0
251–500	18.9	21.2	54.3	37.9	7.8	18.3	81.7	0.0	31.9	68.1	0.0	100.0
≥500	15.0	8.1	71.7	20.6	7.7	18.5	77.8	3.7	51.1	47.8	1.1	100.0
No response	17.3	12.8	†	†	†	†	†	†	†	†	†	na
Religious affiliation												
Hindu	72.3	76.1	45.4	49.9	4.7	12.2	85.5	2.3	24.1	75.2	0.7	100.0
Buddhist	20.2	16.1	51.6	43.5	4.9	11.1	85.2	3.7	29.8	66.9	3.3	100.0
Other	6.2	6.0	44.7	47.4	7.9	25.0	75.0	0.0	31.6	68.4	0.0	100.0
No response	1.3	1.8	†	†	†	†	†	†	†	†	†	na
Religiosity												
Not religious	17.5	7.5	51.4	41.1	7.5	12.0	80.0	8.0	30.8	67.3	1.9	100.0
Religious	61.7	69.0	47.9	48.4	3.7	10.4	87.9	1.7	26.5	73.3	0.2	100.0
Very religious	19.9	21.2	40.2	52.5	7.3	18.3	78.9	2.8	22.1	74.6	3.3	100.0
No response	1.0	2.4	†	†	†	†	†	†	†	†	†	na
Total	100.0	100.0	na	na	na	na	na	na	na	na	na	na

p≤.05. *p≤.01. ****p≤0.01. †Excluded from the analysis. Note: na=not applicable

ed from the analysis. Of the remaining 948 students, 65% were males and 35% females. On average, the young men were 18.8 years old, and the young women were 18.5 years old. Slightly more than half of the young men were 11th-standard students, while slightly more than half of young women were in their final undergraduate year (Table 1). Male students were more or less equally distributed across the academic programs, while female students were predominantly in the arts.

Similar proportions of young men and young women worked for an income (15% and 12%, respectively), and among those who reported their personal income, males had an only marginally higher income than females. The main sources of income for students were parents (pocket money) and earnings from jobs; a few students received scholarships.

The vast majority of students were Hindu (72% of males and 76% of females), and a sizable minority were Buddhist (20%

and 16%, respectively); 6% had other religious affiliations, such as Islamic, Christian, Parsi and Jain. Overall, 82% of young men and 90% of young women considered themselves religious or very religious.

Data on the educational and occupational status of the students' parents, family income and type of residence (Table 2, page 142) indicate that a majority of students came from families of low socioeconomic status. Only about 20% had fathers with more than a higher secondary education; the occupational status of fathers was correspondingly low. Mothers' educational status was lower than fathers', and most students (69% of males and 73% of females) reported that their mothers were housewives. About two-thirds of participants said that their annual family income was 5,000 rupees (US \$120) or less, and three-fifths resided in slums or chawls.*

Virtually all of the students (95%) classified their families as religious or very religious. Female students were more like-

ly than males to perceive their family environment as comfortable (71% vs. 59%) and as not strict (46% vs. 40%); this could reflect that in Indian families, boys not only enjoy more freedom but also expect more freedom, whereas girls are socialized to expect less freedom and therefore are more accepting of restrictions.

Roughly three-fifths of both male and female respondents had a moderate level of knowledge of issues related to sexual behavior (Table 3, page 143). Young women were better informed than young men about menstruation and pregnancy, while male students were better informed than female participants about male contraception (not shown). Overall, students were poorly informed about STDs, but their basic awareness regarding HIV and AIDS was high.

*Chawls, which are somewhat better than slums, usually are one-room tenements with shared bathing and toilet facilities.

Table 2. Percentage distribution of college students, by selected family characteristics; and percentage distribution, by each characteristic, according to sexual behavior

Characteristic	% dist. of students		Any sexual experience						Sexual intercourse (males)			Total
	Males (N=613)	Females (N=335)	Males			Females			Yes	No	No response	
			Yes	No	No response	Yes	No	No response				
Father's education												
Illiterate	7.0	1.5	51.2	44.1	4.7	†	100.0	0.0	30.2	65.1	4.7	100.0
Primary	13.1	7.2	47.5	51.3	1.2	20.8	79.2	0.0	27.5	72.5	0.0	100.0
Middle school	15.0	14.6	38.0	55.4	6.6	10.2	87.8	2.0	27.2	71.7	1.1	100.0
Higher secondary	44.0	54.9	49.6	45.6	4.8	11.9	85.9	2.2	25.6	73.7	0.7	100.0
College/technical	19.7	21.5	43.8	49.6	6.6	13.9	81.9	4.2	24.0	74.4	1.6	100.0
No response	1.1	0.3	†	†	†	†	†	†	†	†	†	na
Father's occupation												
Managerial/ professional	23.0	25.1	46.8	48.2	5.0	12.3	86.4	1.3	29.8	70.2	0.0	100.0
Business	17.1	17.6	44.8	51.4	3.8	16.9	83.1	0.0	23.8	76.2	0.0	100.0
Clerical	26.1	27.2	46.9	46.9	6.2	13.2	82.4	4.4	20.0	78.1	1.9	100.0
Semiskilled	20.6	19.1	48.4	46.8	4.8	9.3	90.6	0.1	30.9	67.5	1.6	100.0
Daily wage/ unemployed	5.9	3.3	52.8	47.2	0.0	18.2	81.8	0.0	30.6	69.4	0.0	100.0
Others	3.9	6.6	45.8	45.8	8.4	9.1	86.4	4.5	29.2	62.5	8.3	100.0
No response	3.4	1.2	†	†	†	†	†	†	†	†	†	na
Mother's education												
Illiterate	20.6	10.1	47.6	47.6	4.8	17.6	79.4	3.0	31.7	65.9	2.4	100.0
Primary	23.2	15.5	47.2	47.9	4.9	15.4	82.7	1.9	21.8	77.5	0.7	100.0
Middle school	21.5	24.2	50.0	46.2	3.8	3.7	95.1	1.2	25.6	74.2	0.2	100.0
Higher secondary	23.8	42.7	46.6	47.9	5.5	14.0	83.2	2.8	29.4	69.2	1.4	100.0
College/technical	10.1	7.5	35.5	58.1	6.4	20.0	76.0	4.0	14.5	83.9	1.6	100.0
No response	0.8	†	†	†	†	†	†	†	†	†	†	na
Mother's occupation												
Managerial/ professional	5.2	6.3	46.9	46.9	6.2	14.3	85.7	0.0	37.5	62.5	0.0	100.0
Business	12.7	11.0	51.3	39.7	9.0	5.4	94.6	0.0	32.1	64.1	3.8	100.0
Clerical	4.6	4.5	50.0	42.9	7.1	20.0	60.0	20.0	25.0	75.0	0.0	100.0
Daily wage	4.1	1.8	60.0	36.0	4.0	16.7	83.3	0.0	28.0	72.0	0.0	100.0
Housewife	68.5	73.4	46.2	49.8	4.0	13.0	85.1	1.9	25.2	73.8	1.0	100.0
Other	1.5	2.1	44.4	55.5	0.1	14.3	57.1	28.6	†	100.0	0.0	100.0
No response	3.4	0.9	†	†	†	†	†	†	†	†	†	na
Family income (rupees)												
≤2,000	25.8	20.9	41.7	53.2**	5.1	7.1	90.0	2.9	24.7	74.7	0.6	100.0
2,001–5,000	41.8	48.7	44.9	50.8	4.3	12.3	85.3	2.4	23.8	74.2	2.0	100.0
>5,000	30.3	29.0	54.8	40.9	4.3	16.5	82.5	1.0	30.1	69.9	0.0	100.0
No response	1.8	1.5	†	†	†	†	†	†	†	†	†	na
Type of residence												
Flat/quarters	36.2	37.6	47.7	46.8	5.5	15.9	81.0	3.1	26.6	72.1	1.3	100.0
Slum/chawl	62.2	58.5	45.9	49.3	4.8	10.2	87.8	2.0	25.7	73.2	1.1	100.0
Other	1.3	2.7	62.5	37.5	0.0	†	100.0	0.0	25.0	75.0	0.0	100.0
No response	0.3	1.2	†	†	†	†	†	†	†	†	†	na
Family religiosity												
Not religious	4.7	4.2	55.2	34.5	10.3	7.1	85.7**	7.2	41.3	55.2	3.5	100.0
Religious	80.8	87.8	46.5	48.9	4.6	10.9	87.1	2.0	25.0	73.9	1.1	100.0
Very religious	14.2	7.2	47.1	47.1	5.8	33.3	62.5	4.2	27.6	71.3	1.1	100.0
No response	0.3	0.9	†	†	†	†	†	†	†	†	†	na
Family environment												
Uncomfortable	4.7	5.7	55.2	31.0**	13.8	22.2	72.2	5.6	31.0	65.5***	3.5	100.0
Comfortable	59.1	71.0	42.3	52.5	5.2	13.0	84.4	2.6	22.4	76.2	1.4	100.0
Neither	35.9	23.0	53.2	43.2	3.6	9.1	89.6	1.3	31.4	68.2	0.4	100.0
No response	0.3	0.6	†	†	†	†	†	†	†	†	†	na
Family restrictiveness												
Strict	60.4	52.5	43.8	50.8	5.4	9.7	88.6	1.7	25.9	72.4	1.7	100.0
Not strict	39.6	46.3	51.4	44.0	4.6	15.5	81.3	3.2	26.3	73.2	0.5	100.0
No response	0.0	1.2	†	†	†	†	†	†	†	†	†	na
Total	100.0	100.0	na	na	na	na	na	na	na	na	na	na

p≤.05. *p≤.01. †Excluded from the analysis. Note: na=not applicable.

The majority of males (70%) and females (66%) held moderate views toward sex in general; young women were more likely than young men to hold traditional views (28% vs. 18%). Attitudes toward

premarital sex differed considerably by gender. Some 66% of female students held traditional views about premarital sex, compared with only 38% of young men. A smaller proportion of female than of

male students had liberal views toward premarital sex (5% vs. 16%).

Only 11% of males and 14% of females had a low level of social interaction. Young women were more likely than young men

Table 3. Percentage distribution of college students, by selected intermediate characteristics; and percentage distribution, by each characteristic, according to sexual behavior

Characteristic	% dist. of students		Any sexual experience						Sexual intercourse (males)			Total
	Males (N=613)	Females (N=335)	Males			Females			Yes	No	No response	
			Yes	No	No response	Yes	No	No response				
Knowledge												
Low	22.7	31.3	33.8	61.9****	4.3	9.5	89.5***	1.0	15.1	82.7***	2.2	100.0
Moderate	61.0	57.9	47.6	46.5	5.9	10.3	86.6	3.1	30.7	68.5	0.8	100.0
High	16.3	10.8	62.0	35.0	3.0	33.3	63.9	2.8	24.0	75.0	1.0	100.0
Attitude toward sex												
Liberal	11.7	5.7	50.0	43.1	6.9	31.6	57.9***	10.5	34.7	63.9	1.4	100.0
Moderate	70.0	65.9	45.7	49.4	4.9	9.0	89.1	1.9	26.3	72.3	1.4	100.0
Traditional	18.3	28.4	49.1	46.4	4.5	16.8	81.0	2.2	19.6	80.4	0.0	100.0
Attitude toward premarital sex												
Liberal	16.0	5.4	64.3	25.5****	10.2	16.7	83.3	0.0	54.1	43.9****	2.0	100.0
Moderate	45.7	28.7	49.3	45.7	5.0	10.4	86.5	3.1	28.9	70.4	0.7	100.0
Traditional	38.3	65.9	36.6	60.4	3.0	13.1	84.6	2.3	11.1	87.7	1.2	100.0
Social interaction												
Low	10.6	13.7	31.7	60.3****	8.0	13.3	82.2***	4.2	19.0	77.8****	3.2	100.0
Medium	70.0	77.9	40.1	55.7	4.2	10.0	87.7	2.3	19.6	79.2	1.2	100.0
High	19.4	8.4	79.0	14.3	6.7	35.7	64.3	0.0	52.9	47.1	0.0	100.0
Erotic exposure												
Low	25.9	61.2	19.5	75.5****	5.0	5.3	90.2****	4.2	6.9	89.9****	3.2	100.0
Medium	55.8	37.6	48.2	47.4	4.4	23.0	74.6	2.4	27.8	71.6	0.6	100.0
High	18.3	1.2	81.2	11.6	7.2	50.0	50.0	0.0	48.2	51.8	0.0	100.0
Total	100.0	na	na	na	na	na	na	na	na	na	na	na

p<.01. *p<.001. Note: na=not applicable.

to have a medium level of social interaction (78% vs. 70%), and male students were more likely than females to have a high level (19% vs. 8%).

Roughly three-quarters of young men reported a medium or high level of erotic exposure, compared with about two-fifths of young women.

Bivariate Findings

Overall, 47% of male participants and 13% of females had had any sexual experience; 26% and 3%, respectively, had had intercourse. In the following analyses, young women's experience of sexual intercourse has been excluded, because the number reporting this behavior was very small.

Individual-level factors exerted a greater influence on males' sexual behavior than on females' (Table 1). The proportion of young men who had had any sexual experience increased steadily from 21% among those aged 15 or younger to 68% among those older than 21; similarly, those in the final year of college were significantly more likely than those in the 11th standard to be sexually experienced. Young men in the arts program were more likely to have engaged in sexual activity (53%) than were those studying science or commerce (39–48%). Those who were employed had a higher level of sexual experience (67%) than those who did not work (43%), and the level of sexual experience

increased as young men's income rose. Generally similar patterns were seen with regard to young men's level of intercourse. Among female students, however, only age, year in school and academic program significantly influenced the likelihood of having had sexual experience.

In general, the socioeconomic variables at the household level did not show any significant relationship with students' sexual behavior (Table 2). The exception was that male students' level of any sexual experience rose from 42% of those with the lowest family income to 55% of those in the highest income category. Of the remaining familial variables, increasing religiosity raised the likelihood of sexual activity among female students, and an uncomfortable family environment was associated with elevated levels of any sexual activity and of sexual intercourse among male participants.

All of the intermediate variables except attitude toward sex in general were significantly associated with young men's sexual behavior (Table 3). Those with liberal attitudes toward premarital sex and high levels of social interaction and erotic exposure were significantly more likely than their peers with lower scores on these indices to have had any sexual experience and to have had sexual intercourse. Notably, young men with a high level of knowledge about sexuality-relat-

ed issues were the most likely to be sexually experienced (62%), and the proportion who had had a sexual encounter declined as the level of knowledge dropped; in contrast, those with a moderate level of knowledge were more likely to have had intercourse (31%) than were those with either a high or a low level of knowledge (24% and 15%, respectively).^{*} Findings were similar for female students, except that a liberal attitude toward sex in general was associated with the greatest likelihood of having had any sexual experience (32% vs. 9–17%), and attitude toward premarital sex had no significant effect.

The importance of knowledge about issues related to sex extends beyond its importance in terms of influencing sexual experience. In particular, one might expect that knowledge would lead to the practice of safer sex; results of an examination of this behavior, however (not shown), did not support this hypothesis. Among the

^{*}The inconsistent relationship between knowledge and the level of sexual intercourse among young men invites an examination of the construction of the knowledge index. We cross-tabulated the individual items that constituted the index with sexual experience and found that the exclusion of one or more of them did not considerably affect the results presented in Table 3. Furthermore, any other logical classification of the knowledge index also does not significantly alter the pattern. Since the effect of knowledge on sexual experience is modified by other factors, the multivariate analysis will clarify the independent effect of level of knowledge.

Table 4. Odds ratios (and 95% confidence intervals) from logistic regression analysis showing the likelihood that students have had any sexual experience and, for males, sexual intercourse, by selected characteristics

Characteristic	Any sexual experience		Intercourse (males)
	Males	Females	
Age-group			
<18 years	1.00	1.00	1.00
≥18 years	2.43 (1.58–3.71)****	2.23 (0.88–5.64)*	1.71 (1.06–2.77)**
Work for income			
No	1.00	1.00	1.00
Yes	1.54 (0.74–3.19)	0.81 (0.22–2.91)	2.02 (1.03–3.97)*
Personal income (rupees)			
≤100	1.00	1.00	1.00
101–500	1.54 (0.96–2.34)*	1.20 (0.50–2.94)	1.50 (0.90–2.48)
≥501	2.17 (0.95–4.90)*	1.95 (0.40–9.58)	2.13 (0.99–4.62)*
Family income (rupees)			
≤2,000	1.00	1.00	1.00
2,001–5,000	0.97 (0.59–1.60)	1.78 (0.38–3.60)	0.80 (0.46–1.40)
≥5,001	1.26 (1.36–2.16)	0.73 (0.20–2.69)	0.85 (0.47–1.54)
Family religiosity			
Religious	1.00	1.00	1.00
Not religious	1.27 (0.48–3.35)	1.67 (0.22–12.43)	1.69 (0.67–4.26)
Family restrictiveness			
Strict	1.00	1.00	1.00
Not strict	1.32 (1.14–1.99)	0.71 (0.33–1.55)	0.90 (0.58–1.42)
Family environment			
Comfortable	1.00	1.00	1.00
Neither	1.46 (0.95–2.23)*	0.24 (0.04–1.30)*	1.40 (0.90–2.20)
Uncomfortable	1.91 (0.71–5.21)	0.58 (0.13–2.51)	1.11 (0.40–3.06)
Knowledge about sexuality			
Low	1.00	1.00	1.00
Medium	0.77 (0.45–1.31)	0.74 (0.26–2.07)	1.28 (0.68–2.43)
High	0.48 (0.23–1.07)*	2.57 (0.67–9.87)	0.43 (0.18–0.98)**
Attitude toward premarital sex			
Traditional	1.00	1.00	1.00
Moderate	1.39 (0.90–2.14)	0.94 (0.17–5.21)	2.55 (1.49–4.35)****
Liberal	2.65 (1.39–5.05)***	1.59 (0.27–9.30)	6.57 (3.42–12.68)****
Attitude toward sex			
Traditional	1.00	1.00	1.00
Moderate	0.94 (0.55–1.58)	0.10 (0.02–0.55)***	1.52 (0.83–2.77)
Liberal	0.94 (0.42–2.15)	0.13 (0.02–0.83)**	1.45 (0.62–3.39)
Social interaction			
Low	1.00	1.00	1.00
Medium	1.23 (0.64–2.36)	0.63 (0.18–2.20)	0.93 (0.43–1.97)
High	3.91 (1.65–9.30)***	3.25 (0.71–14.73)	2.14 (0.90–5.16)*
Erotic exposure			
Low	1.00	1.00	1.00
Medium	3.25 (1.92–5.53)****	4.68 (2.01–10.80)****	3.81 (1.82–7.92)****
High	14.61 (6.36–33.45)****	27.99 (2.34–333.62)****	5.90 (2.43–14.30)****
<i>Constant</i>	–2.6061****	–1.2448	–4.3009****
–2 log likelihood (initial)	806.7133	250.7509	699.5984
–2 log likelihood (estimated)	598.295	191.031	526.427

*p≤.10. **p≤.05. ***p≤.01. ****p≤.001.

160 young men who had ever had intercourse, 13% had a low level of knowledge, 72% a moderate level and 15% a high level. Yet, of the 148 of these students who answered a question on condom use, 43% reported never having used the method, and 45% said they had used it only sometimes. Thus, even though most young men had at least a moderate level of knowledge, the vast majority engaged in unprotected intercourse. Further calcula-

tions revealed that 18% of young men with a high level of knowledge always used condoms, compared with 11% of those with a moderate level and 5% of those with a low level of knowledge.

The age at which knowledge is gained may determine the extent of its influence on sexual experience or the practice of safer sex. Overall, 55% of the young men who had ever had intercourse said that they were younger than 18 the first time

they had done so; this group includes 71 students in the 11th standard and 17 in their final year of college. These young men might have had inadequate knowledge at the time they initiated intercourse, but presumably at least the older ones among them have improved their knowledge since then.

Multivariate Findings

The logistic regression analyses included 12 of the 21 variables examined at the bivariate level (Table 4). We excluded the family-level socioeconomic variables, which had no significant associations with sexual behavior. And of the two variables addressing religiosity, we retained only the family-level one, on the assumption that the degree of religiosity in the family influences family environment and restrictiveness.

In the analysis of factors affecting the odds of any sexual behavior, male students aged 18 or older were more than twice as likely as their younger counterparts to be sexually experienced (odds ratio, 2.4); for female students, the odds ratio was similar, but the result reached only a marginal level of statistical significance ($p < .10$). Effects of the other individual-level variables, as well as of the familial variables, were at best of marginal statistical significance; the findings suggest that young men with a high personal income and those who consider their family environment neither comfortable nor uncomfortable may have an elevated likelihood of being sexually experienced.

The intermediate variables had the greatest effects on sexual behavior, but the results differed for male and female students. Among young men, those with liberal attitudes toward premarital sex were nearly three times as likely as their more traditionally minded peers to be sexually experienced (odds ratio, 2.7), and those with a high level of social interaction were almost four times as likely (3.9). Male students with a moderate level of exposure to erotic materials were three times as likely as those with less exposure to have sexual experience (3.3), and the odds were dramatically higher among those with a high level of exposure (14.6). Among female students, moderate or liberal attitudes toward sex in general decreased the odds of sexual experience, and exposure to erotic materials raised the odds.

Most of the factors that were associated with an elevated likelihood of any sexual activity among male students also had significant effects on young men's odds of having had intercourse. In addition,

working for income doubled the odds that male students had had intercourse (2.0), and a high level of knowledge decreased the odds (0.4). Furthermore, both moderate and liberal attitudes toward premarital sex increased the likelihood of intercourse (2.6–6.6). A high level of social interaction had only a marginal effect, and while erotic exposure remained significant, the effect of a high level of exposure was greatly reduced.

To investigate the extent to which the choice of variables included in the multivariate analysis influences the results, we conducted five additional analyses of the effect of knowledge about issues related to sex on sexual behavior (Table 5), each controlling for the effects of a subset of the variables included in Table 4. In general, these calculations yield considerably different odds ratios, although changes in the direction of the effect are infrequent.

When sexual knowledge is the only independent variable considered, the analysis confirms that the likelihood of having had intercourse is highest among young men with a moderate level of knowledge (odds ratio, 2.5), next highest among those with a high level of knowledge (1.8) and lowest among those with the least knowledge. In analyses including additional variables, however, males with a medium level of knowledge remain the most likely to have had intercourse (1.3–2.1), but those with a high level of knowledge become the least likely to have done so (0.4–0.5). Thus, the effect of knowledge depends on the extent of knowledge gained.

The pattern of variation is different when we consider any sexual experience as the dependent variable. For male students, the analysis including only the level of knowledge confirms the bivariate finding that the chance of having had any sexual experience increases with knowledge level. This result holds also when the socioeconomic and familial variables are considered, but when the intermediate variables are added, the direction of effects reverses; as knowledge level increases, the chance of experience decreases. Thus, the change observed is due primarily to the influence of other intermediate variables.

For young women, the bivariate regression result is consistent with the bivariate cross-tabulation, showing that the odds of sexual experience increase as the level of knowledge rises. However, the effect of a moderate level of knowledge is minimal (odds ratio, 1.1), and this may help explain why the inclusion of more variables produces a change in the direction of the effect. In all analyses including additional vari-

Table 5. Odds ratios from logistic regression analyses showing the likelihood that students have had any sexual experience and, for males, intercourse, by characteristics included in the analysis, according to level of knowledge about sexuality-related issues

Type of experience and characteristics included	Males			Females		
	Low	Moderate	High	Low	Moderate	High
Sexual intercourse						
Knowledge only	1.00	2.46	1.75	na	na	na
Knowledge/socioeconomic/familial	1.00	2.14	0.99	na	na	na
Knowledge/intermediate	1.00	1.28	0.52	na	na	na
Knowledge/socioeconomic/intermediate	1.00	1.30	0.43	na	na	na
Knowledge/familial/intermediate	1.00	1.31	0.54	na	na	na
All characteristics	1.00	1.28	0.43	na	na	na
Any sexual experience						
Knowledge only	1.00	1.87	3.24	1.00	1.12	4.90
Knowledge/socioeconomic/familial	1.00	1.52	1.68	1.00	0.88	3.60
Knowledge/intermediate	1.00	0.86	0.80	1.00	0.96	3.27
Knowledge/socioeconomic/intermediate	1.00	0.77	0.50	1.00	0.83	3.18
Knowledge/familial/intermediate	1.00	0.88	0.77	1.00	0.82	2.46
All characteristics	1.00	0.77	0.48	1.00	0.74	2.57

Notes: For complete lists of characteristics, see Tables 1–3. na=not applicable.

ables, female students with moderate knowledge have a reduced likelihood of being sexually experienced (0.7–1.0), while those with a high level of knowledge have considerably elevated odds (2.5–3.6). These results may be affected by the small sample size of sexually experienced female students (42); therefore, we cannot conclude that level of knowledge has a positive effect on the odds of sexual experience for young women and a negative effect for young men.

Discussion

Our findings indicate that in this sample of low-income college students in Mumbai, individual and intermediate variables have significant effects on students' sexual behavior, but most familial factors are nonsignificant. However, the extent of sexual experience and the factors influencing sexual behavior differ between male and female students.

Among individual-level variables, male students' age and work status were associated with their sexual behavior, and their personal income had a marginally significant association. The importance of economic activity may reflect that young men are generally expected to bear the expenses incurred during dating, courtship or outings with young women. Furthermore, personal income may enhance young men's opportunities in seeking commercial sex.

During the focus-group discussions and interviews, many male participants reported an uncomfortable family atmosphere due to both the physical conditions of the household (crowded and poor-quality housing) and authoritarian family re-

lationships, a common feature among Indian families; these young men therefore preferred to spend most of their time outside their homes. The survey finding of an association between perceived family environment and young men's likelihood of having any sexual experience, albeit only marginally significant, supports the notion that those who are uncomfortable in their homes may seek companionship elsewhere.

Young women's largely traditional attitudes toward premarital sex and the effects of these attitudes on their sexual behavior reflect societal norms about female sexuality. In India, female sexuality is circumscribed within the institution of marriage for the purpose of procreation. Furthermore, because the honor and dignity of a man and his family are linked to female sexuality, women are expected to postpone intercourse until they marry and then to remain faithful to their husband. However, in the focus groups and interviews, both female and male participants said that they did not consider kissing (which often means kissing on the cheek, forehead or hands, rather than deep kissing or kissing on the lips) and hugging sexual acts; they indicated that these acts are quite common among students and are not taboo.

Findings from the focus-group discussions and interviews showed that female students did not consider it acceptable to have sexual intercourse even with their boyfriend. They were particularly against premarital sex because a young woman cannot be sure whether a relationship will culminate in marriage; if it does not, the young woman could get a "bad name" in

her community, which would then jeopardize her marriage prospects. Similarly, in the survey, most female respondents agreed that "virginity is a girl's most valuable possession," showing conformity with general social norms. Thus, for young women, the potential consequences of premarital sex, such as pregnancy, desertion by one's future husband, domestic discord and loss of "honor" for self and the family, may deter sexual activity.

Male students' liberal attitudes toward premarital sex applied only to male behavior and were marked by contradictions and double standards. For example, many male participants believed that premarital sex is acceptable for men but not for women. Furthermore, the qualitative data showed that young men have multiple partners, including commercial sex workers, "aunties" (older women), girlfriends and casual acquaintances. And since they perceive HIV infection to be associated only with commercial sex workers, they use condoms mainly during those sexual encounters. Thus, even if young women abstain from premarital sex, young men's sexual behavior may put them at risk of contracting STDs.

This analysis also uncovered an inconsistent relationship between knowledge about sexual issues and sexual behavior. Even though most sexually experienced young men had at least a moderate amount of knowledge, such knowledge was not necessarily reflected in their behavior. This situation is important and requires explanation. It is difficult to hypothesize on the direction of the relationship between knowledge and sexual experience; further research will need to examine the nature, extent and quality of knowledge, as well as the effect of other factors, such as socioeconomic, cultural and familial variables.

In the absence of adequate knowledge about pregnancy, contraception and STDs, it is difficult to prevent unintended pregnancies and STD infection, but students' knowledge of specific topics differed considerably. Recent campaigns against HIV have focused on providing basic information to students, but this information may not be of any functional value if young people lack adequate information about condoms. Therefore, AIDS awareness campaigns may have to broaden their scope to include information on sex, pregnancy and contraception in nonmedical, nontechnical language.

Finally, male students who initiate sexual activity appear to do so at a young age. Moreover, those who are enrolled in the arts

program (which has the least demanding academic schedule) or who are employed are more likely than others to be sexually active. Sexuality education programs should be designed to reach out to these students, as they are also the most likely to attend classes irregularly. Additionally, young men who are exposed to erotic materials, which may carry incorrect, incomplete or distorted messages, require reliable information on sex and related topics.

Many Indian parents strongly oppose sexuality education in schools. These parents need to be made aware that Indian family and educational institutions are losing their traditional level of control over students'—especially male students'—sexual behavior.

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Resumen

Contexto: Estudios aislados indican que el embarazo y las enfermedades transmitidas por vía sexual se encuentran en aumento entre los adolescentes no casados de la India. Sin embargo, muy pocos trabajos de investigación se han centrado en la conducta sexual observada de los jóvenes no casados, en parte debido a que se supone que la misma está regida por las normas tradicionales.

Métodos: Se examinaron los resultados de una encuesta realizada en 1997, entre 966 estudiantes universitarios de bajos ingresos residentes en la zona metropolitana de Mumbai (Bombay) con el fin de identificar los distintos niveles de conducta sexual. Se utilizaron análisis de variables múltiples para examinar los determinantes de esta conducta.

Resultados: Aproximadamente el 47% de los participantes varones y el 13% de las mujeres entrevistados habían tenido alguna experiencia sexual con un miembro del sexo opuesto; el 26% y el 3%, respectivamente, habían tenido relaciones sexuales. Las características individuales, tales como edad e ingresos personales, surtían un efecto modesto sobre la conducta sexual de los estudiantes, y las variables relacionadas con su familia no tenían un efecto significativo. Las más sólidas variables de predicción de la conducta sexual de los estudiantes fueron el conocimiento de éstos acerca de las cuestiones relacionadas con la sexualidad, sus actitudes con respecto al sexo y sus niveles de interacción social y exposición a materiales eróticos. Sin embargo, los resultados entre hombres y mujeres fueron diferentes y el efecto del conocimiento sobre la conducta sexual resultó incongruente.

Conclusiones: Las normas tradicionales y el papel de la familia están perdiendo su importancia como elementos que rigen la conducta sexual de los jóvenes en la India. Es necesario contar con programas de educación sexual con base en las escuelas para ofrecer a los estudiantes información exacta sobre el embarazo, la anticoncepción y las enfermedades transmitidas por vía sexual.

Résumé

Contexte: Quelques études isolées révèlent une tendance à la hausse des grossesses et des maladies sexuellement transmissibles (MST) parmi les adolescentes célibataires en Inde. La recherche se concentre cependant rarement sur les comportements sexuels des jeunes célibataires, généralement supposés suivre les normes traditionnelles.

Méthodes: Les résultats d'une enquête menée en 1997 parmi 966 étudiants universitaires à faibles revenus dans la région urbaine de Mumbai (Bombay) sont examinés en vue d'identifier les différents comportements sexuels. Les corrélations entre ces comportements sont déterminées par analyse multivariée.

Résultats: Environ 47% des participants de sexe masculin et 13% des répondantes avaient eu des contacts sexuels avec un membre du sexe opposé; 26% et 3%, respectivement, avaient eu des rapports avec pénétration. Les caractéristiques individuelles telles qu'âge et revenu personnel n'opéraient qu'un effet modeste sur le comportement sexuel des étudiants,

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et les variables familiales étaient sans effet significatif. Les plus fortes variables de prédiction de comportement sexuel étaient la connaissance qu'avaient les étudiants des questions liées à la sexualité, leurs attitudes à l'égard de ces questions et leurs niveaux d'interaction sociale et d'exposition à un matériel érotique. Les résultats différaient toutefois selon le sexe de l'individu et l'effet de la connaissance n'était pas constant.

Conclusions: *Les normes traditionnelles et le rôle de la famille perdent leur importance dans la maîtrise des comportements sexuels des jeunes en Inde. Il conviendrait d'introduire des programmes d'éducation sexuelle dans les écoles pour sensibiliser adéquatement les jeunes aux questions de la grossesse, de la contraception et des MST.*