

# Sexual and Reproductive Behaviors among Undergraduate University Students in Mashhad, a City in Northeast of Iran

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## Abstract

**Background:** The incidence of sexual transmitted infections (STIs) and HIV/AIDS is globally higher in young people. This study evaluated the prevalence of sexual reproductive behaviors among undergraduate students of Mashhad, Iran.

**Methods:** The study was conducted on 605 students in twelve non-medical faculties of a great university of Mashhad. A self-administered questionnaire was completed on demographic information, sexual contact in the lifetime and during the last three months, and age of first sex. Kaplan-Meier statistic was used to calculate the mean age of initiation of sex. A  $p < 0.05$  was considered statistically significant.

**Results:** After exclusion of individuals over 25 years of age, among 590 students with a mean age of  $20.8 \pm 1.5$  years included in the analysis, 71.4% were female and 85.3% were single. Prevalence of at least one sexual contact in life was 15.1% and 35.3% of single sexually experienced students reported to have sex in the last three months. The lifetime prevalence of sexual relationship in males was significantly higher than females (32.9% vs. 7.6%,  $p < 0.001$ ). The mean age of first sexual experience was 23.7 years with a significant difference between both sexes ( $p < 0.001$ ). In single sexually experienced students, the mean age at first sex was  $17.6 \pm 3.3$  years, 24% started sexual activity at  $< 15$  years, 34.3% had at least 3 partners and only 40.6% stated using condom in their last sex.

**Conclusion:** Although very small proportion of females reported premarital sex, a significant minority of male students experienced sexual and risky behaviors. Therefore, the use of educational programs on related issues to reduce the risk of STIs/HIV among youth including university students seems to be a necessity.

**Keywords:** Adolescent, Iran, Mashhad, Reproductive behavior, Risk-taking, Sexual behavior, Students.

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## Introduction

In a young country like Iran, in which 35% of total population are between 10 to 24 years old (1), attention to sexual and reproductive health is of paramount importance. Several factors magnify the importance of this issue in Iran. Modernity and westernization have been recently widespread among large cities in Iran with an obvious influence on society and culture (2). Access

to information technologies such as satellite and internet has had a crucial role on social and tradition changes. Pre- and extra-marital sex among young people is one of the clear outcomes, which is rising among young Iranian people especially in large cities (2). On the other hand, the mean age at first marriage is rising, particularly among females in the country (3). Due to lack of compre-

hensive education and services on sexual health, risky behaviors might be high. As a result, risky behaviors such as unprotected sexual contact and multiple-partnership are increasing among the Iranian youth (4, 5). Unprotected and extramarital sex enhances the risk of sexual transmitted infections (STIs) and HIV/AIDS. Data shows that the incidence of STIs among young Iranian people is growing (6). Although the prevalence of HIV infection in Iran is not currently so high, as estimated up to 100000 cases in 2012 (7), the trend of HIV infection is noticeable as reports show that above two-thirds of HIV/AIDS cases are detected in the last six years (6).

Globally, about two-thirds of people suffering from STIs, are less than 25 years old (8), and about one-half of the new HIV infected cases are 15-24 years old (9). People in this age may get involved in high-risk behaviors and do not care about the consequences seriously. As most of the college students are in this age group and are potentially at risk, it is necessary to estimate sexual activities of college students carefully in order to prevent any possible epidemic in this population. Iranian Ministry of Health and Medical Education alarmed about "third wave", which considers sexual contacts as the main route of HIV transmission (10).

The incidence of unprotected sexual contacts among university students in different countries is relatively high (11-14). In Iran, studies on this subject are remarkably scarce. In a study on Iranian young single males, more than one-fourth had a history of sexual contact (5). Mashhad, the center of Razavi Khorasan province, in the northeast of Iran, with about 2.5 million population is known as the second largest city of the country after Tehran, the capital city of Iran. As the second largest holy city of the world, Mashhad attracts more than 20 million tourists and pilgrims every year. This city has been one of the primary destinations for emigrants from Afghanistan (15). According to Health Center of Razavi Khorasan province, 476 HIV positive cases were reported from 1986 to March 2011 in the region, of which 34.7% were detected in the last five years (16). To our knowledge, there is no survey on students' sexual activities in this region. Therefore, this study aimed to evaluate the prevalence of sexual and reproductive behaviors among young students of a great public non-medical university in Mashhad, Iran with more than 20000 students.

## Methods

**Study design:** Twelve faculties with 12645 undergraduate students including 8398 females (66.4%) and 4247 males (33.6%) were stratified as humanities, psychology, agriculture, engineering, and basic sciences. The most populous faculty was selected from each stratum. In each faculty, the students were classified based on four different admission years and one study field was randomly chosen from each admission year. Data were collected in May and June 2008 using an anonymous self-administered questionnaire including age, gender, marital status, shift of study, lifetime and current history of sexual contacts, age at first sex, number of partners, using condoms during the last sexual contact and history of AIDS education at the university during the last year. For confirming the confidentiality, students were not supposed to write their personal information on the questionnaires and they had a choice of not answering the questions if did not feel comfortable about a question. Furthermore, for persuading the students to answer questions more accurately, the questionnaires were put in a box for participants' assurance. The study was approved by Research and Technology Deputy of Iranian Academic Center for Education, Culture & Research (ACECR) regarding methodological and ethical issues.

**Data analysis:** The data was described and analyzed by SPSS 16.0. For each question, percent of answers were calculated according to the number of responders instead of the total participants. Due to considerable presence of censored data -which were truly the cases without a positive history- Kaplan-Meier survival statistic was used to calculate the mean initiation age of the sexual contact. A  $p < 0.05$  was considered statistically significant.

## Results

Six hundred and five students answered the questionnaires. Those over 25 years old (15 students) were excluded from the following analyses. The average age of participants was  $20.8 \pm 1.5$  (18-25) years; 71.4% were female and 85.3% were single. Most of the students were studying as day-shift (complimentary) course and the study fields were as follow: Humanities (30.1%), Engineering (22.6%), Agriculture (18.4), Basic sciences (18.0%), and Psychology (10.9%). From the 572 respondents, 103 (18%) attended in HIV/AIDS education programs in their faculties during the last 12 months.

Lifetime prevalence of sexual contact was defined as a history of vaginal, anal or oral sex contact with a same- or opposite-sex partner at least once in any point of life for single students and before marriage in case of married individuals. The lifetime prevalence was 15.1% (84/557), and 35.3% (24/68) of single students with a history of sexual activity reported to have sex in the last three months. Total current prevalence of sexual relation- having any type of sex during 3 months preceding the study among single students- was 5.2% (24/466).

Using Kaplan-Meier survival statistics, the mean age of first sexual experience was 23.7 years old (95% CI, 23.4-24.0); in males 22.1 (95% CI, 21.4-22.8) and in females 24.4 (95% CI, 24.2-24.6;  $p < 0.001$ ). The mean age at first sex was  $17.6 \pm 3.3$  years among 78 sexually experienced youth (Range= 13-22, Median=18.5). Twenty-four percent of students with a positive history started sexual contact at age below 15 years old and 50% initiated between 15-19 years old.

As shown in table 1, the lifetime prevalence of sexual relationship in males was significantly higher than females (32.9% vs. 7.6%,  $p < 0.001$ ). Furthermore, the students with a history of sexual contact were older than other ones ( $21.7 \pm 1.5$  vs.  $20.8 \pm 1.5$  years;  $p < 0.001$ ). On the other hand, no significant relation between sexual contact and marital status and study fields was found ( $p = 0.715$ ,  $p = 0.101$ , respectively). In addition, attendance in an HIV/AIDS education program during the last year was not associated with having sexual contact ( $p = 0.696$ ).

In 67 single students with a sexual contact history, 38.8% had one lifetime partner and 34.3% had three or more partners. Only 26/64 (40.6%) of students stated using condom in their last sexual relation. Moreover, 35% (28/80) of the students including 21 males and 7 females declared to have a same-sex experience. Among married students, 12/87 (13.8%) had a history of premarital sex and one person stated an extramarital sex.

### Discussion

This study on university students in Mashhad, Iran showed a 15% prevalence of premarital sex in any time of their life; 33% in males and 8% in females, and current prevalence of sexual relationships during last 3 months was 5% among single students. A study in Qazvin, a city in center of Iran, reported even a lower prevalence of sexual contact before marriage in university students;

16% in males and 0.6% in females (4). On the other hand, a study by Farahani et al. showed a greater prevalence of some type of sexual relationship as 23% in female undergraduate students from universities of Tehran (17).

It seems that the prevalence of premarital sexual relationship among Iranian students is significantly lower than those are reported from other countries. Frothy-four percent of students in Armenia (77% in males and 7% in females) (11), 69% of male and 59% of female Japanese students (14), 80% of males and 72% of female students from West America (18), and 53% of university students in South Ethiopia (19) have had some type of sexual contact. On the other hand, prevalence of premarital sex in Chinese female students (8.6%) was similar to our study, although male students had obviously experienced a lower sexual contact (17.6%) (20).

The difference in the prevalence of sexual contact among students between countries might be due to the socio-cultural and religious conditions that govern the country (21, 22). Stigmatization of

**Table 1.** Factors related to having a premarital sex among university students in Mashhad, Iran

Variable	Number of students	Frequency of premarital sex (%) *	p-value**
<b>Sex</b>			
Male	164	32.9	< 0.001
Female	393	7.6	
<b>Age (years)</b>			
< 20	107	6.5	0.006
≥ 20	427	17.1	
<b>Marital status</b>			
Single	470	15.3	0.715
Married	87	13.8	
<b>Faculty group</b>			
Humanities	154	16.2	0.101
Engineering	113	21.2	
Agriculture	98	16.3	
Basic sciences	86	7.0	
Psychology	56	14.3	
<b>Study shift</b>			
Day-shift (Complimentary)	365	14.8	0.775
Night-shift (Pay to tuition)	178	15.7	
<b>Attendance in HIV/AIDS education programs</b>			
Yes	101	13.9	0.696
No	448	15.4	

\* % was calculated according to the number of responders instead of the total participants

\*\*  $\chi^2$  ( $p < 0.05$ )

pre- and extramarital sexual contacts is thought to be an important factor for reducing the rate of this behavior in a society (21). In a Muslim country like Iran, sexual relationships before and out of marriage are forbidden and banned by the religion and government. They are assumed as crimes, deserving punishment by law. Furthermore, these types of sexual relationships are also socio-culturally unacceptable in this country (22). In a study in Tehran, the capital city of Iran, 46% of respondents stated that sexual intercourse before marriage is wrong and 54% noted that premarital sex brings a bad reputation for a girl (23).

One of the parameters relevant to the risk of sexual behaviors is the age at which youth initiate sexual activity. Certainly, it differs between countries as it is influenced by ethical, religious and legal affairs (24). In addition, some biologic factors such as the age of menarche, and social factors like freedom in the sexual relationships, educational status and peer pressure might be important in the age of the first sexual experience (25). In our study, the mean and median age at first sex among sexually experienced students was 17.6 and 18.5 years, respectively, and a fourth reported a history of sexual activity before 15 years old. However, the average initiation age is considerably lower in western countries, for instance in the United States, it was as low as 15.7 for males and 16.1 for females (26). Another study in New Zealand showed that the median age at first intercourse was 17 years for males and 16 years for females (27). Moreover, in United Kingdom, over the past 30 years, the median age at first intercourse has declined nearly two years and has reached to 14 years for females and 13 years for males (25). However, in Eastern countries like China the age of first sex experience is above 20 years old (28). The important point related to the age of sexual initiation is that people who initiate sexual activities at younger ages would be at the higher risk for STIs (27, 29, 30). A study from New Zealand revealed that the prevalence of STIs was more in people who had sexual activities at younger ages (27). Thus, the higher age of first sex experience in Iran compared to other countries can be assumed as a preventive factor regarding HIV/AIDS epidemics unless the increasing age of marriage leads to a change in the pattern of sexual activity and a rise in the rate of premarital sexual activity. This relationship is banned and unacceptable in a Muslim country like Iran, which would place partners in higher risk of STIs. The

consequences would be impairment of effective education-based HIV/STIs prevention or any other preventive, diagnostic and therapeutic measurement. This alarming issue needs to be assessed more in the future investigations.

In our study, male students experienced sexual relations four times more than female students. In addition, the age of first sexual experience was lower in the males. In all of the abovementioned surveys, similar findings have been shown regarding the influence of gender on the sexual pattern. Gender in addition to ethnicity was the predictive factor for the adolescents' risk of starting sex in a study in the United States (31). Moreover, young males are more engaged in dangerous sexual behaviors such as drinking or casual intercourse (32-35). While drinking is not related to lower use of condom (29), there is an increased likelihood of having probably unsafe sex after drinking (32).

Condoms are now the most important contraceptive method which young people use in their sexual experiences. Due to the higher knowledge of people about the preventive role of condoms in STIs and HIV infection, nowadays condom use becomes much more common (25). In our study, only 35% of the students declared using condom during their last sexual contact, which is lower than other countries though in another study on Iranian students, a higher rate of condom use (48%) was reported (4). Not using condom in sexual contact increases the risk of HIV and other STI transmission. In Japan, 75% of students who had experienced sexual contact used condom during their sexual contact (14). In Armenia, 74% of students used condom during their sexual contact (11). A lower condom use compared to other countries might be the consequence of inadequate education (25). Although Iran is one of a few countries in the Middle East and North Africa region that provides STIs/AIDS education for youth (36, 37), it seems that these education services are not so efficient to change the sexual practices.

### **Conclusion**

This study clearly shows that considerable lifetime and current prevalence of sexual contact among university students, needs a tactful strategy to shift high-risk behaviors into more sensible and healthier behaviors, in order to prevent the spread of sexually-transmitted disease among the university students. Although the results of this study demonstrates that the first sexual experience was observed in higher ages, especial attention must

be paid to risky sexual patterns such as low condom use.

This study was the first survey on sexual and reproductive behaviors among university students in Northeastern Iran and revealed a noticeable prevalence of premarital sexual relationship with a low rate of condom use. Nevertheless, the proportion of various types of sexual experiences such as vaginal, penetrative, etc. was not determined. Another limitation of this study was that the reasons for not using condom and type of partners were not asked. Moreover, it is possible that students who were absent on the time of survey in comparison to students in the class might have a different sexual behavior which should be considered in generalizing the study's results.

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#### Conflict of Interest

The authors declare that there are no conflicts of interest that could be perceived as prejudicing the impartiality of the research reported.

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