

# Magnitude of Sexual Behaviours Among College Students In The Eighth Macro-Region of Iran By Self-Reported and Network Scale-Up

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## Research Article

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# Abstract

## Background

This study was designed to directly and indirectly estimate the prevalence of sexual behaviors among students of medical science universities in the eighth Macro- region of Iran.

## Methods

This cross-sectional study was performed on 3900 students from Kerman and Sistan and Baluchestan provinces in 2019. The data were collected using direct (i.e., self-report of their own behaviors) and indirect (NSU: Network scale-up) methods.

## Results

The mean (SD) age of students was 22.45 (3.25). The prevalence of heterosexual intercourse in return for money, extramarital heterosexual intercourse, masturbation, sexting, porn watching, homosexuality and abortion based on NSU method was 6.0%, 8.5%, 19.5%, 9.1%, 22.9%, 2.4% and 0.5% respectively. Corresponding figures of the direct method were 5.7%, 5.8%, 18.6%, 9.7%, 23.1%, 2.1% and 0.9% respectively.

## Conclusion

Sexual behaviors like porn watching, masturbation and sexting can harm the youth, family and society. The youth should be given training to correctly react to sexual situations.

## Background

The adolescence and youth are a special period in a person's life, during which sexual relationships begin; the way the person begins his sexual relationships and continues it, would have a great impact on his future life and the next generation (1). Sexual behaviors refer to different behaviors such as talking about sex, masturbation, lovemaking, and intercourse (2). However, unconventional relationships beyond established norms can create various physical and psychological complications such as unwanted pregnancies as well as catching sexually transmitted diseases and the related complications (3). Two-thirds of STDs sufferers are younger than 25 years, which is probably due to their greater tendency to undertake high-risk behaviors at this age and not thinking about relevant implications (2). Marriage in higher age and inadequate knowledge about sexual health are other factors that increase the chance of high-risk sexual behaviors such as: unprotected sexual contact or having different sexual partners (4).

In Iran as a young country (adolescents and young people constituting nearly one-fourth of Iranian population) (5), the progressive prevalence of high-risk behaviors among the youth especially students who are mostly in their younger ages has engendered serious concerns (6). Historically, the religious as well as the sociocultural system of Iran reprehend any extramarital or premarital intercourse as it is considered as a sin among people (7). Changes in the values as well as the economic structure of Iran, have gradually provided the condition for the

emergence of new patterns of sexual behaviors among at least part of the Iranian youth (8). The data from a study indicate that STDs have increased among the Iranian youth (7). In Iran, the third wave of AIDS, which is mostly related to disease transmission via sexual contact is increasing (9).

Some research has been conducted in this regard, and results showed increased incidence of high-risk premarital sexual behaviors in different countries as well as in Iran. In Western countries, the prevalence of sexual behaviors among the youth has reported extremely high. In a study in the US, sexual intercourse has been reported 80% among young men and 73% among women (10). In Turkey, it has also reported that 74% of students have had experience of intercourse (11). On the other hand, in China, the rate of sexual relationships among students has reported lower than mentioned countries (15% in men, 8.5% in women), which can be related to their cultural beliefs (10). As stated earlier, in spite of the cultural beliefs and Islamic religion of Iranian people, they are not immune to high-risk behaviors and progressive prevalence of these behaviors is also seen in Iran. In a study in Mashhad, the prevalence of unconventional sexual relationships has been stated 7.6% and 32.9% of them were students, while 24% of them stating initiating the relationship at age younger than 15 (12). In another study in a city in southern Iran (Roudan), the prevalence of premarital sexual relationships was reported 10.5% and 2.9% among male and female students respectively (6). Researchers have considered different factors such as access to western culture and technology, emotional states, curiosity, substance abuse, and self-control failure (12). The pervasiveness of new sexual behavioral patterns such as increasing prevalence of friendships and relationship between boys and girls, making relationship with several people simultaneously and unconventional relationships such as virtual sex and homosexual relationships among Iranian young people indicate that sexual behaviors have changed towards high-risk behaviors (13). In a study by Garmaroudi et al. (2010), 50% of street women referred to the welfare organization aged 15–19 years, and 24% of them were in 20-24-year-old age, that indicates reduced age of people involved in this social plight (14).

As well as other types of abnormalities that occur in any society, this social issue is latently lurking in the society with various dimensions and feedbacks, which deserves attention rather than denial. Thus, finding these behaviors can unveil the depth of the problem and motivate the healthcare authorities to find solutions. The present study has been performed to investigate the prevalence of high-risk sexual behaviors among the young students in the Eighth Macro-region of Iran, due to cultural and religious differences in this region, which out of the norm sexual issues are known as a social stigma. Since this study provides valid results for health managers and policymakers to make preventive decisions.

## Methods

### Study Design and Sample Size

This cross-sectional study was conducted on 3900 students from medical science universities in eighth macro-region of Iran (Kerman, Rafsanjan, Jiroft, Bam and Sirjan Universities of Medical Sciences in Kerman province and Zahedan, Zabol and Iranshahr Universities of Medical Sciences in Sistan and Baluchestan province) in 2019.

The sample size of each university was determined using a multistage non-random sampling. At first quota sampling method was used to determine sample size at each university based on proportional to size approach. After that, convince sampling was done for selecting students as they were recruited from all departments. Sample size 3524 was calculated. The sample size was increased by up to 15% yielding the maximum sample

size of 4000 participants. 2.5% of questionnaires were removed due to unreliable answers. Final sample size was 2300 and 1600 students from Kerman and Sistan and Baluchestan provinces, respectively.

Inclusion criteria included the students who attended the target university at least for one semester and stated their willingness to participate in the study.

The Ethics Committee of Sirjan university of medical sciences (SIRUMS) reviewed and approved the study design and all procedures (IR.SIRUMS.REC.1397.001) and all experiments were performed in accordance with relevant guidelines and regulations.

## **Data Collection and Instruments**

Data collection were done by a demographic questionnaire for gathering information related to demographic characteristics of the participants (age, sex, marital status and education) and another questionnaire that consisted of two main parts. In the first part, the participants were directly asked about their sexual behaviors at last year and in the second part, they were asked about the number of close friends who were engaged in high risk sexual behaviors (heterosexual intercourse in return for money, extramarital heterosexual intercourse, sexting, porn watching, masturbation, homosexuality and abortion) during the last year either for fun or routinely. The mentioned questionnaire has been validated in Iran and the validity aspects have been confirmed (15).

To reduce errors, the participants were informed about the aim of the study and were ensured about the terms of confidentiality prior to commencement of the study. The participants were then asked to introduce some close friends identified as university students whom the respondent recognized by name and face, and communicated with them by phone or email several times a week outside of the class. The data were collected by trained interviewers ensuring confidentiality by anonymous casting of opinions in a specific box.

## **Data Management and Analysis**

One of the indirect methods for the estimation of the exact size of the target groups is the NSU method (16, 17). This method estimates the proportion of people in high-risk groups in the community based on the average number of people that respondents know in hidden groups and the average size of the respondents' individual network (14). We employed the NSU method to analyze data in this study. We adjusted for the clustering effect of universities in the analysis using survey analysis. All estimates were weighted based on the inverse probability weight of College sampling.

We also calculated Visibility Factor (VF: Ratio of NSU over direct estimates). The VF shows the transmission of sexting behavior in a network of close friends in college students. Statistical analysis was carried out by Excel and SPSS software version 19.

## **Results**

The mean (SD) age of students was 22.45 (3.25), with the range of 19–47 years. A total of 1872 (48%) males and 2028 (52%) females from all academic degrees contributed to this study. Most of them were single (78.4%) and bachelor students (63.5%). The mean number of close friends for the medical universities was 8.1. Other information is provided in Table 1.

Table 1  
Descriptive Attributes of participants in the present study, Iran 2019.

Attribute		Total (n = 3900)	Province	
			Kerman (n = 2300)	Sistan and Baluchestan (n = 1600)
Age, N (%)	19–29	3718 (95.3)	2196 (95.5)	1522 (95.1)
	30–39	164 (4.2)	95 (4.1)	69 (4.3)
	> 40	18 (0.5)	9 (0.4)	9 (0.6)
Sex, N (%)	Male	1872 (48.0)	1142 (49.7)	730 (0.46)
	Female	2028 (52.0)	1158 (50.3)	870 (0.54)
Marital status, N (%)	Single	3058 (78.4)	1853 (80.5)	1205 (75.3)
	Married	774 (19.8)	407 (17.7)	367 (22.9)
	Divorced	68 (1.8)	40 (1.8)	28 (1.8)
Education, N (%)	ASC	814 (20.9)	581 (25.3)	233 (14.6)
	B.Sc.	2478 (63.5)	1304 (56.7)	1174 (73.3)
	M.Sc.	201 (5.1)	139 (6.0)	62 (3.9)
	Ph.D.	84 (2.1)	63 (2.7)	21 (1.3)
	General practitioner	323 (8.4)	213 (9.3)	110 (6.9)

The prevalence of sexual behaviors is reported to be higher in men than in female students in both methods. Watching porn and masturbation were the most prevalent among all students. After porn watching and masturbation, sexting was the most common sexual behaviors overall in both methods.

In the female population, the VF value for almost all types of sexual behaviors was lower than one. Estimates from NSU were lower than those in the direct method (except Porn watching). In the male population, the VF value for sexting and porn watching was lower than one. For Heterosexual Intercourse in Return for Money, Extramarital Heterosexual Intercourse, Masturbation and Homosexuality, the VF value was larger than one (Table 2).

Table 2

The prevalence of Sexual behaviors in last year among all students according to gender, Iran 2019.

Sexual behaviors	Male (n = 1872)			Female (n = 2028)			Total (n = 3900)		
	Direct	Indirect	VF	Direct	Indirect	VF	Direct	Indirect	VF <sup>¶</sup>
	% (95%CI)	% (95%CI)		% (95%CI)	% (95%CI)		% (95%CI)	% (95%CI)	Type equations
Heterosexual Intercourse in Return for Money	5.3 (4.3–6.4)	9.2 (7.8–10.5)	1.7	6.02 (5.9–8.1)	3.1 (2.3–3.8)	0.4	5.7 (4.7–6.8)	6.0 (4.9–7.1)	1.0
Extramarital Heterosexual Intercourse	10.1 (8.7–11.5)	16.6 (14.8–18.3)	1.7	1.9 (1.3–2.5)	0.9 (0.5–1.3)	0.5	5.8 (4.7–6.9)	8.5 (7.2–9.8)	1.5
Masturbation	26.7 (24.7–28.7)	32.4 (30.3–34.6)	1.2	11.1 (9.7–12.6)	7.4 (6.2–8.6)	0.7	18.6 (16.8–20.4)	19.5 (17.7–21.3)	1.1
Sexting (text, photo and video)	13.3 (11.8–14.9)	13.0 (11.4–14.5)	0.98	6.4 (5.3–7.5)	5.5 (4.5–6.6)	0.9	9.7 (8.3–11.0)	9.1 (7.7–10.4)	0.9
Watching Porn	36.7 (34.5–38.9)	35.2 (33.0–37.4)	0.96	10.3 (8.9–11.6)	11.5 (10.01–12.9)	0.9	23.1 (21.1–25.1)	22.9 (21.0–24.8)	1.0
Homosexuality	2.0 (1.3–2.7)	3.3 (2.5–4.1)	1.6	2.1 (1.4–2.7)	1.5 (0.9–2.02)	0.7	2.1 (1.4–2.7)	2.4 (1.7–3.1)	1.1
Abortion	No data	No data	No data	1.5 (1.0–2.1)	0.9 (0.5–1.3)	0.6	0.9 (0.5–1.4)	0.5 (0.1–0.8)	0.5
¶Visibility Factor									

## Discussion

The results of the present study directly and indirectly indicated the rate of sexual behaviors among the medical sciences students in the 8th macro region of Iran. Based on the results of the present study, the incidence of premarital sexual behaviors was higher among the male students than their female counterparts. Studies have shown that sexual behaviors in women are affected by sexual morality and expectations, and women prefer to have sexual relationships to those they would like to get married. However, men report a higher level of sexual experiences as well as allowable sexual attitudes compared to women (18). Furthermore, remaining virgin before marriage is more important to women than men (19).

Based on the results derived from data analyzing, the major sexual behavior among both male and female students was watching pornographic movies with 23.1% in the direct method and 22.9% in the indirect method, respectively, which is in line with the studies of Vakilian et al. (20), Zahedi et al. (21) and Khalilabadi et al. (22) in Iran. Access to technology and communication media, cell phone, and internet can justify this issue (20, 23). Following pornography, masturbation with the frequency of 18.6% in the direct method and 19.5% in the indirect

method was reported as the second most common premarital sexual behavior. Another study in China also reported higher rate of watching pornographic movies as compared to other sexual behaviors among students, and also in line with the present research, the second reported sexual behavior was masturbation (1). In another study by Kasemy conducted in Egypt as a Muslim country, watching pornography and masturbation were also reported as the main sexual behaviors among the youth, which is in line with the present study (24). This kind of sexual behaviors may be related to cultural issues and tabooing the relationships with the opposite sex in Islamic and even Asian countries.

In a study in the US, masturbation was stated as the most common sexual behavior among the youth, with 92% of men and 48% of women reporting this behavior respectively (25). The results of another study showed that 73.8% and 48.1% of adult American men and women respectively experienced masturbation; the prevalence of this behavior and its frequency increased in these individuals in higher ages (26). Another study in US mentioned to high frequency of non-vaginal methods especially before marriage in those who preferred to keep their virginity but be sexually active, thus, the rate of vaginal sexual behaviors has decreased, while the methods such as masturbation as well as oral and anal sex have increased (25). In the present study, sexual behaviors such as vaginal intercourse and homosexuality were less frequent compared to other sexual behaviors, which can be related to the culture. Studies conducted in Asian countries, in line with the present study, have reported less occurrence of these behaviors among the Asian youth compared to their western counterparts (10, 27). Loss of virginity is a concern especially for girls in Asian cultures such as Iranian culture, and in many regions, it can lead to crisis in their life (28).

In this study, the third common sexual behavior among the students was sexting by the frequency of 9.7% in the direct method and 9.1% in the indirect method. Studies have shown that sending sexual images and texts is common among students, and those who have experienced this method previously have greater tendency to repeat it again (29). Other studies have reported relationships between sexting and other high-risk sexual behaviors, unprotected sexual behaviors, sexually-transmitted diseases, and drug abuse, furthermore, these individuals have frequently mentioned sending and receiving erotic images with the person with whom they have sexual relationships (30, 31). In another study, in line with the results of the present study, sexting has also been observed in males more than females (30). Easy access to cell phone and social media is one of the reasons for the prevalence of this behavior among students. Meanwhile, the constraints in dating in the Iranian culture can also promote this behavior among youth (28). In a study conducted in China, spending much time in internet and social networks was reported as an important cause of the incidence of sexual behaviors (10).

Prevalence of high-risk sexual behaviors especially during young ages, can lead to problems such as increased sexually-transmitted infections, unwanted pregnancies, and emergence of psychological and physical harms (28)

Interestingly, as the results of study showed both direct and indirect methods were adopted for discovering sexual behaviors, but direct positive responses between girls were significantly more frequent compared to indirect responses, which can indicate more secretiveness in sexual issues among girls, as the results showed the VF for most sexual behaviors in females was less than 1, while the opposite was true for male students. So, it seems female students do not share their sexual behaviors even with their close friends. On the other hand, as for male students, NSU estimated rates were higher. Two hypotheses are mentioned: one is the male students do not reply direct questions as honestly as female students, second they exaggerate risky behaviors in their network. Although premarital sexual relations of any kind are reprehended according to Iranian society, but it is considered more negative for girls rather than boys (19, 32).

As the results showed, sexual behaviors such as porn watching, masturbation and sexting exist more than other high-risk sexual behaviors in the young population, although in somehow hidden, which may be harm them, their family and society. So training should be given about high-risk sexual behaviors especially among the Iranian youth who live in a sexually restrained culture. Furthermore, the youth and adolescents should learn how to react to sexual issues, images and texts so that they would be less harmed. Training families about sexual issues of the youth and how establish effective communication with young children can enhance the sexual well-being of this group of the society.

## Declarations

**Ethics approval and consent to participate:** The Ethics Committee of SIRUMS reviewed and approved the study design and all procedures (IR.SIRUMS.REC.1397.001). The aim of the study, confidentiality of the information and the right to withdraw were explained to the participants and a written consent was obtained. Questionnaires were anonymous.

**Consent for publication:** Not applicable

**Availability of data and materials:** The datasets analysed during the current study are available from the corresponding authors on reasonable request. All data generated or analysed during this study are included in this published article.

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