

Risky sexual behavior among Iranian university students and its relationship with religiosity and familial support

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Summary Background. Risky sexual behavior (RSB) has emerged as an important public health issue worldwide.

Objectives. This study was aimed at evaluating the prevalence of RSB and its risk factors regarding family support and religious beliefs, as well as other risky behaviors among college students in Bushehr city.

Material and methods. This cross-sectional study was conducted on a total of 977 students of Bushehr city, southern Iran, in 2016. Participants were selected using multistage sampling. Data collection was performed using a self-administered questionnaire comprised of data on extramarital sexual behavior at three different time points. Data was analyzed using SPSS version 16.0 with the chi-square test, independent samples *t*-test and logistic regression.

Results. The overall prevalence of RSB was 5.6%, and the lifetime, past year and past month prevalence of extramarital sexual activity was 9.9%, 8.1% and 4.7%, respectively. Approx. 1.5% of the students also reported alcohol and other drug use at last sex and 3.7% reported having sexual intercourse without a condom. The results revealed that age (OR = 1.10), male gender (OR = 2.85), smoking (OR = 2.27), hookah use (OR = 2.23), alcohol use (OR = 6.08) and family support (OR = 0.97) were significantly associated with extramarital sex. Moreover, male gender (OR = 1.94), age (OR = 1.10), hookah use (OR = 2.94), illicit drug use (OR = 3.80) and religiosity (OR = 0.98) were associated with RSB.

Conclusions. There is a concurrence of high-risk sexual behaviors in Iranian students and the experience of high-risk behavior is related to other RSBs. Therefore, effective training interventions and programs should be designed and implemented to reduce risky behaviors, especially sexual behaviors.

Key words: risk, sexual behavior, religion, students.

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Background

Sexual behavior as a global public health issue among youth aged 15–24 years is categorized into three types, including unprotected vaginal, oral and anal intercourse [1]. Risky sexual behavior (RSB) is the main cause of an increased number of sexually transmitted infections (STIs) amongst young people, and one-third of nearly 340 million cases of STIs occurred among young people under the age of 25 [2, 3].

University students are young people that are exposed to a variety of RSBs, including early sexual initiation, multiple sexual partners, unprotected sex, homosexual sex and alcohol and drug use during sexual activity [1]. The results of other studies in various countries showed a high prevalence of RSB among college students. For example, the prevalence of RSB was reported as being 50.9% in American students, 26.4% in Russian students and 33.8% among Turkish students [4–6]. In addition, an upward

prevalence of RSB has been shown in developing countries [7, 8]. Studies conducted in India and China showed the prevalence of RSB as being 17.6% and 21%, respectively [9, 10].

Iran is a religious country, and most are Muslims. Therefore, similar to other religious countries, premarital sex is sinful and prohibited. It is believed that the increased age of marriage in both men and women significantly increases RSB among youth, particularly students living far away from home in Iran [11]. However, recent reports in Iran showed that the incidence of HIV/AIDS cases in People Who Inject Drugs (PWID), Female Sex Workers (FSW) and prisoners is decreasing [12], but in recent years, morbidity has increased in young people due to unsafe sex, and the estimated number of HIV-infected people is more than 110,000 [13]. However, the prevalence of RSB in young people in Iran is varied among studies. Safiri et al. reported the prevalence of RSB as being 5.5% amongst Iranian students [14]. Another study also reported the prevalence of extramarital sex as being 10.8% [15].



Previous studies have shown that factors such as smoking and drug use, low- and high-income families, domestic violence against women, alcohol use, delinquent peers, poor self-control and history of psychiatric disorders, including sexual assault and suicide, were positively associated with RSB [16–20]. Furthermore, improved religious beliefs and behaviors and strong family support were associated with reduced RSB among students [15, 21]. Due to the controversy among RSB, family support and religiosity and the limited number of studies that examined the relationship between RSB and religiosity and family support in Iran, this study was aimed at evaluating the prevalence of RSB and its relation with other risky behaviors, family support and religiosity among Iranian college students.

Material and methods

Study design and participants

This cross-sectional study was conducted on a total of 977 students in Bushehr city, southern Iran, in 2016. Participants were selected using multistage sampling. First, all students of the target university were listed. Classes (clusters) were then randomly selected from each college, and all students of each selected class were recruited into the study. The exclusion criteria include people under the age of 18 or people who did not agree to participate in the study.

Measures

Data collection was performed using a standard self-administered questionnaire. Accordingly, extramarital sex was measured at three different points in time: lifetime, over the past year and over the past month. As such, the question was “Did you have any sex (vaginal, oral or anal) with a partner of the opposite sex in your lifetime/over the past year/over the past month?” The Young Risky Sexual Behavior (YRSB) questionnaire is a standard tool in the Iranian community that was used in a previous study and was applied to collect the required data [15]. This questionnaire evaluated RSB in three domains, including drug or alcohol use during the last sexual intercourse, sex with more than one partner and lack of condom use in the last sexual intercourse. The content validity of this tool was approved by an epidemiologist, psychologist and sociologist. All participants were informed about the purpose of the study to insure confidentiality. All subjects also entered the study voluntarily. Data on demographic characteristics, smoking, hookah use, alcohol use, illicit drug use and physical conflict was obtained to investigate the relation between sexual behaviors and these variables. The 13-item Aneshensel & Sucoff parental support scale was also used to assess family support among students. Moreover, the religious beliefs of the participants were evaluated using Kendler’s general religiosity scale. More details about the questionnaire used in the current study are reported on in our recent article (ref). The parental support scale and Kendler’s general religiosity scale were valid and reliable tools that were used in Iranian studies, and their validity was approved [15, 22].

Statistical analyses

Data was analyzed using SPSS version 16.0 with the chi-square test and independent samples *t*-test. The logistic regression (backward model) was also used to assess multiple relations between RSB and extramarital sex in the last year with other related factors.

Ethical considerations

All procedures performed in this study on human participants were in accordance with the ethical standards of the insti-

tution and the national research committee, as well as with the 1964 Helsinki declaration and its later amendments and comparable ethical standards. Participation in the study was voluntary. After getting acquainted with the research project, each participant expressed their written consent to participate in the study. The study was approved by the Ethics Committee of the Shiraz University of Medical Sciences (no. IR.Sums.REC.1395.S1246).

Results

A total of 977 students entered this study, with the mean age of the participants being 21.11 ± 2.32 years (ranging from 17 to 39 years), and 58% were female. The mean of religious beliefs and family support was 112.57 ± 20.49 and 50.57 ± 10.34 , respectively. The prevalence of RSB and extramarital sex is presented in Table 1. The overall prevalence of RSB was calculated as being 5.6% among students. Approx. 1.5% of the participants reported alcohol and other drug use during the last sexual intercourse, and 3.7% reported having sexual intercourse without a condom, and 1.6% reported multiple sex partners. Accordingly, the lifetime, past year and past month prevalence of extramarital sex was 9.9%, 8.1% and 4.7%, respectively. Approx. 0.7% of the participants reported daily or almost daily extramarital sex with a partner of the opposite sex. The lifetime, past year and past month prevalence of extramarital sex was shown to be higher in men than in women.

Table 1. Prevalence of extramarital sex and high-risk sexual behavior among university students by gender

Items	Male		Female		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Extra marital sex						
Lifetime extramarital sex	71	17.6	26	4.5	97	9.9
Last year extramarital sex	59	14.6	20	3.5	79	8.1
Last month extramarital sex	34	8.4	12	2.1	46	4.7
Daily or almost daily in past month	5	1.2	2	0.3	7	0.7
High-risk sexual behavior*	37	9.2	18	3.1	55	5.6
Using drugs or alcohol before the last sexual relationship	10	2.5	5	0.9	15	1.5
Sexual intercourse with numerous persons	13	3.2	3	0.5	16	1.6
Sexual intercourse without using a condom	22	5.4	14	2.4	36	3.7

* Includes using drugs or alcohol before the last sexual relationship or sexual intercourse with numerous persons or sexual intercourse without using a condom.

Demographic characteristics and factors associated with extramarital sex and RSB are shown in Table 2. The results show that male gender, age, hookah use, smoking, illicit drug use (OR = 3.80) and alcohol use were significantly associated with RSB and extramarital sex ($p < 0.05$). The variable ‘living with parents’ was significantly associated with extramarital sex ($p < 0.05$). The mean scores of family support and religiosity were significantly lower in students with a history of extramarital sex and RSB.

The results of logistic regression analysis are presented in Table 3. After adjusting for other variables, there was a significant relationship between age (OR = 1.10), male gender (OR =

Table 2. Demographic characteristics and correlated variables by last year “having extramarital sex” and “high-risk sexual behavior” in a sample of Iranian students 2016

Characteristics	Extramarital sex (last year)		p	High-risk sexual behavior		p	n
	no	yes		no	yes		
	n (%)	n (%)		n (%)	n (%)		
Gender							
male	345 (85.4)	59 (14.6)	< 0.001	367 (90.8)	37 (9.2)	< 0.001	404
female	553 (96.5)	20 (3.5)		555 (96.9)	18 (3.1)		
Marital status							
single	781 (92.0)	68 (8.0)	0.821	804 (94.7)	45 (5.3)	0.250	849
married	117 (91.4)	11 (8.6)		118 (92.2)	10 (7.8)		
Living in							
parental home	207 (88.8)	26 (11.2)	0.003	220 (94.4)	13 (5.6)	0.728	233
dormitory	624 (93.8)	41 (6.2)		629 (94.6)	36 (5.4)		
single house	67 (84.8)	12 (15.2)		73 (92.4)	6 (7.6)		
Residency status							
native	472 (91.7)	43 (8.3)	0.750	488 (94.8)	27 (5.2)	0.580	515
non-aboriginal	426 (92.2)	36 (7.8)		434 (93.9)	28 (6.1)		
Working along with education							
yes	122 (84.1)	23 (15.9)	< 0.001	127 (87.6)	18 (12.4)	< 0.001	145
no	776 (93.3)	56 (6.7)		795 (95.6)	37 (4.4)		
Cigarette smoking (last month)							
yes	65 (66.3)	33 (33.7)	< 0.001	80 (81.6)	18 (18.4)	< 0.001	68
no	833 (94.8)	46 (5.2)		842 (95.8)	37 (4.2)		
Hookah use (last month)							
yes	117 (74.5)	40 (25.5)	< 0.001	133 (84.7)	24 (15.3)	< 0.001	94
no	781 (95.2)	39 (4.8)		789 (96.2)	31 (3.8)		
Alcohol use (last month)							
yes	27 (48.6)	31 (53.4)	< 0.001	42 (72.4)	16 (27.6)	< 0.001	39
no	871 (94.8)	48 (5.2)		880 (95.8)	39 (4.2)		
Illicit drug use (lifetime)							
yes	26 (66.7)	13 (33.3)	< 0.001	28 (71.8)	11 (28.2)	< 0.001	39
no	872 (93.0)	66 (7.0)		894 (95.3)	44 (4.7)		
Physical fight (last year)							
yes	55 (79.7)	14 (20.3)	< 0.001	57 (82.6)	12 (17.4)	< 0.001	69
no	843 (92.8)	65 (7.2)		865 (95.3)	43 (4.7)		
Age (mean ± SD)	21.05 ± 2.17	21.86 ± 3.52	0.048	21.07 ± 2.19	21.87 ± 3.80	0.128	21.12 ± 2.32
Score of religious beliefs (mean ± SD)	113.98 ± 19.15	96.70 ± 27.52	< 0.001	113.41 ± 19.76	98.67 ± 26.88	< 0.001	112.58 ± 20.50
Score of familial support (mean ± SD)	51.05 ± 10.04	45.08 ± 12.04	< 0.001	50.91 ± 10.09	44.80 ± 12.64	0.001	50.57 ± 10.34

Table 3. Logistic regression analysis of the association between „extra marital sex” and „high-risk sexual behavior” and their correlated factors in a sample of Iranian students 2016

Variables	Extramarital sex (last year)			High-risk sexual behavior		
	OR	95% CI	p	OR	95% CI	p
Age	1.10	1.01–1.20	0.028	1.10	1.01–1.21	0.036
Gender (male)	2.85	1.60–5.07	< 0.001	1.94	1.04–3.61	0.037
Cigarette smoking (last month)	2.27	1.13–4.58	0.021	–	–	–
Hookah use (last month)	2.33	1.21–4.45	0.011	2.94	1.59–5.45	0.001
Alcohol use (last month)	6.08	2.99–12.39	< 0.001	–	–	–
Score of familial support	0.97	0.95–0.99	0.028	–	–	–
Illicit drug use (lifetime)	–	–	–	3.80	1.64–8.79	0.002
Score of religious beliefs	–	–	–	0.98	0.97–0.99	0.001

2.85), smoking (OR = 2.27), hookah use (OR = 2.23), alcohol use (OR = 6.08) and family support (OR = 0.97) with extramarital sex. In addition, male gender (OR = 1.94), age (OR = 1.10), hookah use (OR = 2.94), illicit drug use (OR = 3.80) and religiosity (OR = 0.98) were associated with RSB. Goodness-of-fit for the regression model was checked by the Akaike Information Criteria (AIC)

and Hosmer–Lemeshow test. The highest steps of model have the best fitness.

Discussion

According to the findings of this study, the lifetime, past year and past month prevalence of extramarital sexual activity was

9.9%, 8.9% and 4.7%, respectively. The results of many studies conducted in Western and Asian countries revealed that extramarital sex is more prevalent among youth [23–26]. However, the prevalence of extramarital sex was reported as lower in Iran compared with other countries, which was in accordance with the results of our study [27]. In Iran, sexual intercourse out of marriage is prohibited and is religiously unacceptable and sinful, and this could be a reason for non-reporting by the participants in the study. We attempted to reduce this limitation by building trust and creating a private space for the participants and by using an anonymous questionnaire.

The findings of this study also revealed that the overall prevalence of RSB is lower in this study compared with previous studies. For instance, *Derbie et al.* reported the prevalence of RSB as being 28.4% [1]. Another study indicated the prevalence of RSB as being more than 69% [28]. Two studies conducted in Iran reported the prevalence of RSB as being 5.6% and 10.7% [29, 30]. These differences may be due to cultural differences in various societies. Moreover, due to the use of a self-administered questionnaire in the present study, the measured prevalence of RSB is less than the expected value. It should also be noted that differences in the prevalence of RSB may be due to the different implications of RSB used in various studies.

According to our study, having sex without the use of a condom and having multiple sex partners is lower than in other studies. A study in China revealed that 24.8% of students used a condom during sexual intercourse, and 3.6% reported having multiple sex partners [31]. A study conducted in Shiraz city also revealed that 23.8% of the students had premarital sex without the use of a condom [32]. These differences can also be due to religious differences, as well as differences in the level of family support for young people in different countries and regions. Usually, in Iran, especially in more religious areas, family support for young people is higher, and this difference in Bushehr, which is a more traditional city than Shiraz, may be the reason.

Lack of use of a condom during sexual intercourse can significantly increase the risk of sexually transmitted diseases, such as AIDS, hepatitis, sexually transmitted infections and genital warts, as well as unintended pregnancies and cervical cancer in women.

In Iran, religious laws and customs regarding sexual activity out of marriage make those involved in these activities do this secretly due to fear, social stigma, etc. Moreover, as there are usually no adequate education courses regarding sexuality and sexual behavior in schools and universities, these students are more likely to be involved in RSB. As such, these individuals may not have access to a condom. Although, in this study, few students reported RSB, it is strongly suggested to place this subject in the curriculum at Iranian universities to improve students' knowledge towards RSB.

A number of previous studies suggest that religiosity and family support can have a protective effect in preventing RSB [22, 30]. In the present study, after adjusting for confounding effects, higher scores of family support reduced the risk of extramarital sex. It is also important to note that poor friendship between parents and children, humiliation, banning and reprimanding, criticism, loneliness and neglect may force children to make friends with the opposite sex and possibly experience safe or unsafe sexual intercourse [33]. It seems that lack of emotional support from parents encourages children to establish relationships with the opposite sex to compensate for emotional deficiency, and thus the individual may do anything, including sexual intercourse, to maintain the friendship of the opposite sex. In this regard, parents must first be aware of the potential risks of having sex outside of marriage. Furthermore, family support, especially at an academic age, may reduce the likelihood of committing these risky sexual behaviors.

The effective role of religious beliefs in preventing RSB has always been focused on by Iranian and other researchers all around the world [22, 30]. The results of the present paper

show that higher scores of religious beliefs reduced the risk of RSB. *Abebe et al.* stated that students who spend more time in religious places are less likely to display RSB [34]. Another study showed that religious people mostly seek out conditions in which their sexual behavior is acceptable, and subsequently, the likelihood of having multiple sex partners is lower among these individuals [35]. According to this evidence, religious people have better mental and behavioral health than the non-religious people. Religious orders for safe behaviors, alcohol and drug abuse which are believed to cause harm to oneself and others, and condemning risky sexual behavior in different religions makes religious people less likely to be exposed to RSB. Therefore, it is necessary for university courses to emphasize the promotion of the religious beliefs of students.

The results of logistic regression analysis revealed that older age and male gender were positively associated with extramarital sex and RSB. Previous studies showed that older age is significantly associated with RSB [31, 36]. With age, the sense of autonomy increases in individuals, and men are more likely to engage in RSB due to greater autonomy, lower parental monitoring and the risk-taking behaviors among these individuals. Alcohol use is another risk factor for RSB among youth. Accordingly, *Choudhry et al.* reported that alcohol consumption was significantly associated with having multiple sex partners [37]. There is also evidence that alcohol consumption is associated with the onset of RSB [36]. The findings of the present study were consistent with the results of previous studies on the relation between alcohol consumption and RSB.

The results of this study indicate the co-occurrence of sexual behavior out of marriage, as well as RSB with other high-risk behaviors. For example, hookah use and the illicit drug use were associated with RSB. Much attention has been paid to the co-occurrence of RSB in a large number of studies [30, 38, 39]. Therefore, all high-risk behaviors should be considered in RSB prevention programs to effectively reduce risky behaviors, especially sexual behaviors.

Although our results showed the pattern of RBS in the college students of southern Iran, most young people were in this area for the first time. Nevertheless, some limitations might be seen in our results. First, like any other cross-sectional study, it is affected by an inherent bias, as exposure and outcome are measured at the same time. Therefore, this relationship does not necessarily have a cause-and-effect relationship, and in these circumstances, it is impossible to establish a temporal relationship between exposure and the onset of the outcome. Some students were also barred from participating in the study, which could expose our results to selection bias. **Due to religious concerns** and the social desirability effect, our estimates are underestimated. Furthermore, multicenter studies with different religious and ethnicities could yield more accurate estimates. However, despite these limitations, our study includes a large representative sample of Bushehr students. Therefore, the body of evidence can be a good view of the prevalence of RBS and related factors among Iranian students. Since this study was performed on students of Bushehr University, it cannot be said that the results show the general population. Therefore, we suggest that in the future, studies in different countries and with different ethnicities and cultures, especially in Islamic countries, should be addressed to RBS according to the views of the families in these countries, as well as studies at lower ages, including high school students, in order to reduce the age of occurrence of high-risk behaviors in recent years.

Conclusions

The findings of the present paper showed the prevalence of sexual practices and RSB in university students in southern Iran for the first time and showed the effect of other risky behaviors on external sexual activities. However, due to religious con-

cerns and the social desirability effect, such as fear and social stigma, our results are underestimated. Based on our results, there was a co-occurrence of risky sexual behaviors and other risk-taking behaviors. Nevertheless, family support and religion were shown as protective factors for RSB. Therefore, effective training interventions should be designed and implemented to

empower individuals and improve life skills to reduce risky behaviors, especially sexual behaviors.

Abbreviations. RSB – Risky Sexual Behavior; STIs – Sexually Transmitted Infections; PWID – People Who Inject Drugs; FSW – Female Sex Workers; YRSB – Young Risky Sexual Behavior.

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